

PITTSBURGH, PA DISTRICT

This District comprises part of eastern Ohio, western Pennsylvania, southwestern New York, northern West Virginia, and northwestern Maryland embraced in

drainage basin of Ohio River and Tributaries above mile 127 (below Pittsburgh, PA), immediately upstream from New Martinsville, WV.

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Navigation

1. ALLEGHENY RIVER, PA

Location. The Allegheny River is 321 miles long. It rises in northern Pennsylvania, flows northwestward into New York, thence generally southwestward to Pittsburgh, PA, where it joins with Monongahela River to form the Ohio. (See Geological Survey Charts for western Pennsylvania and southwestern New York.)

Existing Project. The project consists of eight locks and dams to afford slack-water navigation for a length of 72 miles from Pittsburgh, PA to above East Brady, PA. Controlling depth through canalized portion is 9' at normal pool level. Channel width varies from a minimum of 200' to full width of river at mouth. Existing project is complete, the last lock, No. 9, was placed in service in 1938. All locks and dams are in fair condition. Navigation channel has been widened at certain points and, in general, maintained to project depth, thus affording adequate depth for passage of commercial tows.

Local Cooperation. Fully complied with.

Terminal Facilities. City of Pittsburgh constructed a modern wharf for river freight. There are numerous privately maintained terminals and docks, consisting of tipples, various types of hoists, chutes, and pipelines for use in loading and unloading coal, stone, sand, gravel, petroleum products, steel products and other commodities. Transshipment of freight between river and railroads is handled at privately owned river-to-rail terminals. Existing private terminals are adequate for shipments and receipt in Pittsburgh District of type of commerce now in existence.

Licenses. The Federal Energy Regulatory Commission granted license for construction on non-federal hydropower facilities on the abutment side of the dam at the following locations: Lock 5, Allegheny - FERC license 3671, generating capacity 9.3 megawatt, start of operation October 1988; Lock 6, Allegheny - FERC license 3494, generating capacity 8.6 megawatt, start of operation December 1988; Lock 8, Allegheny - FERC license 3021, generating capacity 13.6 megawatts, start of operation November 1990; Lock 9, Allegheny - FERC license 3021, generating capacity 18.0 megawatts, start of operation November 1990.

Operations & Maintenance, General. During FY03 there was no major work on the Allegheny River by contract. The river wall filling valve at Lock 2 was replaced by government labor at a cost of \$468,004.

2. CONSTRUCTION OF LOCKS & DAMS, OHIO RIVER

See this heading under Ohio River portion.

3. MONONGAHELA RIVER, PA & WV

Location. Formed by junction of Tygart and West Fork Rivers about one mile south of Fairmont, WV, and flows northerly for 128.7 miles to its junction with Allegheny River, forming Ohio River at Pittsburgh, PA. (See Geological Survey Charts for southwestern Pennsylvania and northern West Virginia.)

Previous Project. For details see Annual Report for

1963, page 1070.

Existing Project. Provides for improvement of river by nine locks and dams to afford slack-water navigation for its entire length from Pittsburgh to above Fairmont, WV. Original Locks and Dams 7, 8 and 9 were replaced by new Locks and Dams 7 and 8 in 1925. Increased traffic necessitated enlargement and improvement of Locks and Dams 1 to 6 between Pittsburgh and Rices Landing, PA, by building two parallel chambers and fixed concrete dams during 1905 and 1932. Locks and Dam 1 were eliminated in 1938 by raising Emsworth Dam, Ohio River. Reconstruction of Lock 2 was completed in 1953 to provide two modern navigation chambers. The existing Locks and Dam 2 were originally completed in 1907; major modifications were made in 1923 and 1924, and in 1926 the upper guard and guide walls were extended. Construction of Maxwell Locks and Dam and the reconstruction of Dam 4 have allowed for removal of obsolete Locks and Dams 5 and 6. Small and antiquated original Locks and Dams 10 to 15, inclusive, have been replaced by three modern structures. Morgantown Lock and Dam, initial step in replacement program, was completed in 1950 replacing Locks and Dams 10 and 11. Hildebrand Lock and Dam, next upstream, was completed in 1959 replacing Locks and Dams 12 and 13. Raising crest of Dam 8 was also completed in 1959 as part of upper river improvement and eliminates restricted depth in upper reach of pool. Opekiska Lock and Dam was completed in 1967 replacing Locks and Dams 14 and 15. Completion of this link in upper river replacement program provides for entire river length of minimum channel depth of 9', varying in width from a minimum of 250' to practically full width at mouth.

Locks and Dam 3 showed advanced stages of deterioration and, because of its strategic location and its importance to industry throughout the greater Pittsburgh area and the nation, emergency remedial work had to be done in 1977. Major rehabilitation of Locks and Dam 3 was completed on October 27, 1980.

The Water Resources Development Act of 1986 authorized the replacement of Lock and Dam 7 with Grays Landing Lock and Dam and the construction of a new lock landward of the existing lock at Lock and Dam 8 (renamed Point Marion Lock and Dam). In accordance with the provisions of this act, 50% of the total cost of construction for the Grays Landing and Point Marion projects was derived from the Inland Waterways Trust Fund. Construction of a new lock at Point Marion was completed and put into service in December 1993. Construction of a new lock at Grays Landing was completed and put into service in May 1993. Construction of the dam at Grays Landing was completed in December 1995.

Local Cooperation. None required.

Terminal Facilities. City of Pittsburgh constructed a modern wharf for freight. Boat landings are maintained by some municipalities along the river. A large number of tipples at mines and various types of hoists at manufacturing plants and sand and gravel supply companies are maintained for private use in loading and unloading coal, coke, billets, steel products, sand, gravel, and other commodities. These terminals

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and docks are not available for general commerce. A number of docks and pipelines are also privately maintained for petroleum and acid products. Marine ways are maintained by some of the larger industries. These are also several terminals for rail-to-river and river-to-rail transfer. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. New Work: construction of the new Grays Landing Dam was completed in December 1995 at an approximate cost of \$25,000,000. Construction of the lock was completed in May 1993 at a contract cost of approximately \$80,000,000. Removal of the old fixed crest dam and river lock wall at Lock and Dam 7 was completed in FY96 at a cost of \$2,800,000. Work continues on cultural resources and finalizing real estate actions for the remainder of the project. The present project consists of 84 acres of fee land and 403.3 acres of easement. The estimated total cost of the project, which is scheduled to be complete in September 2005, is \$181,000,000.

The Water Resources Development Act of 1992 authorized the District to proceed with navigation improvements on the Lower Monongahela River. Locks and Dams (L/D) 2, 3 and 4 are located within 50 miles of the "Point" in Pittsburgh. The authorized Lower Mon Project is a two-for-three improvement that will replace the 100-year old fixed-crest dam at L/D 2 with a gated dam (Braddock Dam) and replace the 70-year old, undersized Locks 4 with new twin 84' x 720' locks. The 100-year old L/D 3 will be removed and a new navigation pool will be established that will be 5' higher between Braddock and Elizabeth and 3.2' lower between Elizabeth and Charleroi. The project will adjust all municipally owned facilities adversely affected by these river level changes and dredge existing Pool 3. In addition, the Port Perry Railroad Bridge crossing at river mile 11.7 will be adjusted to accommodate the higher pool level under a cost sharing contract with Norfolk Southern Railroad. Construction delays fail to reduce risks associated with continued reliance and use of existing L/D 3 and Locks 4. A structural failure would cause a loss in transportation savings of over \$200 million/year. Delays increase the cost of work by about 2.7%/year for inflation and result in continued transportation inefficiencies of about \$30 million/year. Each year the project is delayed, \$1,500,000 of Operations & Maintenance funds must be used to continue L/D 3 in service. The project is funded equally from General Appropriations from the U.S. Treasury and from the Inland Waterways Trust Fund. The new Braddock Dam was constructed from two large prefabricated concrete segments that were floated into place above, and set down upon, a pre-constructed foundation system of sheet-pile cut-off walls and large diameter drilled shafts. The segments placed in-the-wet form the base of the new dam, which was constructed above the water from floating plant. This in-the-wet technology is expected to save about \$5,000,000 and reduce construction time by one year over traditional cofferdam construction. Approximately \$170,000,000 of project construction has been undertaken through FY04, including the \$107,400,000 Braddock Dam contract, prior improvements at L/D 2

in preparation of the new gated Braddock Dam, approach dikes for the new Charleroi Locks and initial Pool 3 dredging contract and relocations for West Elizabeth, Elizabeth, Dravosburg, Glassport, Charleroi and Mon Valley Sewage. A \$7,900,000 site development contract is underway at Charleroi and will be completed in FY04. FY04 funds are being used for on-going construction at Braddock and Charleroi, including a \$13 million contract for demolition of the Charleroi river chamber and engineering and design efforts to finalize plans and specification for the new Charleroi Locks. A contract for construction of the new river wall at Charleroi Locks will be awarded in late FY04.

Operations & Maintenance, General. Major contract work on the Monongahela River during FY03 included the start of fabrication of tow haulage equipment for Lock 2, total contract \$437,288 and the start of dredging the Monongahela River, total contract \$683,828. In FY03 government hired labor replaced the land wall emptying valve and middle wall filling valve at Lock 2 for \$719,804. Also, the lock chamber was dewatered to renovate the downstream gate sill at Lock 4 for \$1,251,904.

4. OPEN-CHANNEL WORK, OHIO RIVER

See this heading under Ohio River portion.

5. TYGART LAKE, WV

Location. Tygart Lake is located on the Tygart River in Taylor and Barbour Counties, north central WV. The lake is approximately 26 road miles due east of Clarksburg, WV and 30 road miles south of Morgantown. The dam is situated 22.7 river miles above the mouth of the Tygart River at Fairmont, or 2.25 miles upstream from Grafton, WV, and about 78 miles south of Pittsburgh, PA. (See Geological Survey Charts for Fairmont, Thornton, and Belington, WV.)

Existing Project. A reservoir for low water regulation and flood control. Dam is concrete gravity type with an uncontrolled center spillway flanked by abutment sections joining valley sides. Project was authorized by Public Works Administration January 11, 1934, and adopted by 1935 River and Harbor Act. For further project description see Annual Report for 1962. Authorized project is complete. Reservoir is in operation for low water control in Monongahela River and for purpose of flood protection in Monongahela and Ohio Valleys. Construction of dam was started in 1935 and placed in operation in 1938. Present project lands consist of 2,662.9 acres in fee, flowage easements over 1,216.9 acres and 1,731.9 acres of other easements.

Local Cooperation. The State of West Virginia has assumed responsibility for the development and operation of hunting and fishing areas as well as the Tygart Lake State Park. Controlled releases for downstream navigation and recreation are also coordinated with others to the extent feasible. No local cooperation is required at completed project; however, future recreational developments are subject to certain conditions of non-federal cost-sharing under Federal Water Project Recreation Act of 1965. A cost-sharing agreement was executed with the West Virginia Department of Recreation in May 1981.

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Licenses. The Federal Energy Regulatory Commission granted a license to the City of Grafton for construction of a non-federal hydropower facility at this project (FERC license 11851). Details of the design and other issues are still being finalized. The deadline for the start of project construction expired on April 15, 1995; however, the developer was granted an extension which expired on March 1, 2004.

Operations During Fiscal Year. Operations & Maintenance, General: Reservoir was operated for benefit of flood control and low water regulation, as required, and project structures were operated and maintained in a serviceable condition throughout the year. Estimated flood control benefits achieved by this project through September 30, 2003 revised to reflect damages prevented in downstream districts as well as Pittsburgh District, were \$1,097,997,000. Activities under reservoir management program comprising sanitation measures, conservation, land management, and operation and maintenance of public use facilities continued. This work was limited in scope as the State of West Virginia has jurisdiction over most of the recreation in the reservoir area.

Tygart Dam was selected as a Dam Safety Assurance Project in March 1996. The Evaluation Report was initiated in March 1994 to address spillway capacity and structural stability in relation to the probable maximum flood event. Findings of the report concluded that under present conditions, the probable maximum flood would overtop the dam and cause failure. The report recommends protecting the dam from failure to include downstream erosion protection and stilling basin modifications. The Design Memorandum was completed in September 1998 and Plans and Specifications were completed in July 1999. The construction contract was advertised in August 1999 and awarded to Joseph B. Fay Co. on September 28, 1999 for \$5,628,929. The Notice to Proceed was issued in October 1999 and work was completed in November 2002. The project features included construction of a new road to provide access to the left bank abutment of the dam, new concrete channels consisting of a concrete wall (end sill) and concrete slope paving on the downstream side of the dam, new concrete lagging retaining walls on the left and right banks of the dam, modification of the existing parapet wall, and minor repairs to the roadway decking. The project is now in compliance with current Dam Safety requirements. A construction contract for the replacement of the bulkhead hoist and side gate rehab was advertised in April 2003 and awarded to OCCI, Inc. in June 2003 for \$2,579,800. Work is currently 60% complete and construction will be completed in 2004.

An additional construction contract to upgrade the electrical and mechanical systems was advertised in September 2003 and will be awarded in 2004.

6. OTHER AUTHORIZED NAVIGATION PROJECTS

See Table 18-C on other authorized navigation projects.

Flood Control - Local Protection

7. ELKINS, WV

Location. On Tygart River in north central Randolph County, WV, about 155 miles south of Pittsburgh, PA. It is at downstream end of a long, broad reach of upper Tygart Valley, about 75 miles above mouth of river. (See Geological Survey Chart for Elkins, WV.)

Existing Project. Provides flood protection by diverting flood discharges from upstream arm of loop of natural river channel into an artificial cutoff channel, thereby bypassing City of Elkins. Improvement is designed to accommodate discharges equivalent to maximum flood of reasonable expectancy. Project construction was started in May 1946 and completed in May 1949. Completed work, except that portion of channel maintained by federal government, has been operated and maintained by City of Elkins since March 31, 1949. Present project lands consist of 32.04 acres in fee and 526.01 acres in easements. Project was authorized by 1938 Flood Control Act. For further project description see Annual Report for 1962, page 1222. Federal cost of completed project was \$1,772,627; estimated non-federal cost for lands, easements, and rights-of-way was \$40,000.

Local Cooperation. Fully complied with.

Operations During Fiscal Year. Operation & Maintenance, General: routine investigations and inspections were made. Project was last inspected in June 2002. Flood damages prevented through FY03 were estimated to be \$19,669,000.

8. JOHNSTOWN, PA

Location. Project is located in southwestern Cambria County, PA, about 58 miles east of Pittsburgh, PA. It is in a deep and comparatively narrow valley at junction of Stoney Creek and Little Conemaugh River, which unite to form Conemaugh River. (See Geological Survey Chart for Johnstown, PA.)

Existing Project. Provides for increased channel capacity by enlarging and realigning channels and protecting banks with concrete pavement. Improvement designed to accommodate discharges equivalent to those of March 1936 flood, maximum natural flow of record, minimum of over-bank flow and to practically eliminate damages there from. Project construction began in August 1938 and was completed in November 1943. Footer protection for Unit 4 was completed in November 1949. Present project lands consist of easements over 199 acres. Project was authorized by Flood Control Acts of 1936 and 1937. For further project description see Annual Report for 1962, page 1215.

Local Cooperation. The rules of local cooperation for the rehabilitation of the existing project are governed by the FY91 Energy and Water Resources Appropriations Act. Pursuant to this act, the City of Johnstown will have a limited role in securing the needed rights of access to non-federal structures included in the line of protection and will hold and save the United States from damages due to construction or

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operation and maintenance of the work on the non-federal structures, except for damages due to the fault or negligence of the United States or its contractors.

Operations During Fiscal Year. Operations & Maintenance, General: The FY91 Energy and Water Resources Development Appropriations Act authorized and directed the Corps to undertake a major rehabilitation of the existing project. The Project Design Memorandum was approved in June 1995. The major rehabilitation work is to be accomplished under the Construction, General appropriation at an estimate cost of \$32,500,000. Contract plans and specifications were initiated in July 1995. Six of seven construction contracts were awarded through September 2002. The seventh contract is dependant on Operations & Maintenance funds availability. The CG project is scheduled to be physically complete in September 2004. The Construction, General work consists of the repair of 54 existing wall sections, slope paving and replacement of balustrade (safety) wall. Also included in the major rehabilitation is all the necessary Operation and Maintenance funded work. The O&M work estimated to cost \$7,500,000 consists of concrete spill repairs, slope paving joint repairs, sediment removal and miscellaneous repairs. Through FY03 \$30,000,000 CG and \$3,600,000 O&M have been expended. Flood damages prevented by the project through September 30, 2003 were estimated to be \$803,387,000.

9. PUNXSUTAWNEY, PA

Location. Borough of Punxsutawney is on Mahoning Creek in Jefferson County, PA, about 85 miles northeast of Pittsburgh, PA. It is on a comparatively wide, alluvial flood plain about 52 miles above mouth of stream and 30 miles above Mahoning Creek flood control dam. (See Geological Survey Charts for Punxsutawney and Smicksburg, PA.)

Existing Project. Provides flood protection by channel enlargement, dikes, and walls. Improvement is designed to accommodate discharges 20% greater than that of maximum flood of record. Construction was accomplished by construction of four units. Construction started in May 1946 and was completed in June 1950. Present project lands consist of perpetual easements over 72.6 acres. Completed works, except that portion of channel maintained by the federal government, have been operated and maintained by Borough of Punxsutawney since July 31, 1950. Project was authorized by 1938 Flood Control Act. For further project description see Annual Report for 1962, page 1209.

Local Cooperation. Fully complied with.

Operations During Fiscal Year. Operations & Maintenance, General: operation activities continued and routine investigations and inspections were made. Project was last inspected in October 2002. Total flood damages prevented through FY03 were estimated to be \$72,196,000.

10. SAW MILL RUN, PITTSBURGH, PA

Location: The project is located within the City of Pittsburgh, Allegheny County, at Ohio River mile 0.7 and traverses upstream from the mouth of Saw Mill Run approximately 4,700 L.F.

Existing Project: The proposed project was authorized in the 1986 WRDA in accordance with the Chief of Engineers report dated January 30, 1978. The 1996 WRDA increased the project estimate to \$12,780,000 and increased to \$22,000,000 in the FY04 Appropriations Act. This project was included in the FY97 appropriations as a new construction start.

Local Cooperation: The City of Pittsburgh is the local sponsor for this project and is responsible for real estate acquisition and relocation design and construction. The project will be cost shared 75% federal and 25% non-federal in accordance with the requirements of the 1986 WRDA.

Operations During Fiscal Year: In October 1997, a Project Cooperation Agreement was executed with the City of Pittsburgh. In June 1998, the District executed a Memorandum of Agreement (MOA) for the purpose of allowing the District to acquire the real estate and complete relocation work on behalf of the city. With the MOA executed and the funds for this effort transferred to the District in July 1998, real estate acquisition was initiated, and was completed in November 2000. Plans and specifications for the project were completed in March 2000 and the construction contract was advertised in November 2000. The contract was awarded to Carmen Paliotta Contracting in April 2001 for \$12,881,875. The construction contract is currently 80% complete. The current completion date for the contract is May 2004. Once the contract is completed, it will be turned over to the City of Pittsburgh for operation and maintenance responsibilities. Due to contract overruns and unforeseen conditions certain project features were deleted from the existing construction contract in order to maintain project cost within funding constraints. When funding becomes available, an additional construction contract will be awarded to complete the items deleted from the previous contract.

11. WEST VIRGINIA & PENNSYLVANIA FLOOD CONTROL

Location. Projects under this program in the Pittsburgh District are located in the Tygart River Basin in West Virginia and the lower Allegheny River in Pennsylvania. The priority (named in the legislation) communities located in West Virginia are Phillippi, Belington, Parsons and Rowlesburg. The priority communities in Pennsylvania are New Bethlehem, Clymer, Benson, Hooversville, Meyersdale, Connellsville and Dubois. Section 581 of the Water Resources Development Act of 1996 authorizes the Secretary of the Army to design and construct flood control measures for these priority communities at a level of protection sufficient to prevent future losses from flooding equivalent to that which occurred in January 1996, but at least no less than a 100 year level of protection. Project development will consist of developing a least cost plan including structural and/or non-structural elements, to provide the authorized level of protection without guard to a benefit/cost ratio.

Local Cooperation. The reconnaissance phase is 100% federally funded. The Detailed Project Report (DPR), Plans and Specifications and Construction phases are cost shared at 65% federal funds and 35%

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non-federal funds. A Design Agreement is required to design efforts and a Project Cooperation Agreement is required prior to the project construction. In September 1998, Director of Civil Works, HQUSACE, approved the District's request for a waiver of the up-front cost sharing for the design portion of the West Virginia projects. The basis for the approval of the waiver was that the priority communities in West Virginia qualified for a reduced cost share (5%) based on the ability to pay provisions of Section 103(m) of the Water Resources Development Act of 1986.

Operation During Fiscal Year. In Pennsylvania, the General Management Plans for the seven communities were completed in January 1999. Project Study Plans (PSP) for the seven communities were completed in July 2000. Design Agreements are being prepared and current plans call for the execution of these agreements pending the local sponsors' ability to obtain the non-federal cost share. Design Agreements were executed for the Meyersdale and Hooversville projects in FY01. A DPR for Meyersdale will be complete in FY04 and for Hooversville in FY05.

In West Virginia, the PSPs for the two communities were completed in September 1998 and approved in November 1998. Since no Design Agreement is required for these communities, work on the DPRs started in December 1998. The DPRs for the two communities remain under development. Least cost plans and locally preferred plans for both communities have been developed. The DPRs are currently scheduled for completion in FY04, but is dependent on adequate funds. A decision to implement a Flood Warning System for the two communities as the first phase of the projects was made in September 1999. An interim DPR for the Flood Warning System was submitted in November 2001. Installation of the Flood Warning System was completed.

Flood Control - Reservoirs

12. BERLIN LAKE, OH

Location. Dam is on Mahoning River about 73 miles above its confluence with Shenango River. It is about 10 miles above existing Milton Reservoir Dam and 35 miles upstream from Warren, Ohio. Reservoir is in Portage, Mahoning and Stark Counties, OH. (See Geological Survey charts for Warren, Ravenna, and Alliance, OH.)

Existing Project. A reservoir for flood control and water supply. Dam consists of a partially controlled, concrete gravity, center spillway flanked by rolled-earthfill abutment sections joining valley sides. Authorized project is complete and in operation for flood control and low water regulation purposes in industrialized Mahoning Valley below. Construction of dam was started in January 1942 and completed in June 1943. Present project lands consist of 6,885.3 acres in fee and 1,098.7 acres in easements. For further project description, see Annual Report for 1962, page 1233.

Local Cooperation. None required at completed

project; however, future recreational developments are subject to certain conditions of non-Federal cost-sharing under Federal Water Project Recreation Act of 1965.

Operations During Fiscal Year. Operations & Maintenance, General: Reservoir was operated as required and necessary repairs were made to structures and appurtenances. Two prefabricated restrooms were installed as replacements for restrooms made inoperable due to wear and tear in September 2003, cost \$70,000. A performance base indefinite delivery contract for gate attendants, janitorial services, grass mowing and trash pick up operated during FY03 at a total cost of \$174,000. A National Public Lands Day event was held at the project in September 2003 with 150 NPLD volunteers and other project volunteers providing \$25,500 in services during FY03. Four additional security gates were installed at the Dam and Dam Maintenance complex to complement existing security features. Estimated flood control benefits achieved in FY03 were \$51,572,000; total benefits through September 2003, revised to reflect damages prevented in downstream districts as well as Pittsburgh District, were \$549,672,000. A program to enable the dam facility to be operated remotely from the project or District Office was initiated in FY02 for completion in FY04. Activities under reservoir management program comprising sanitation measures, conservation, land management, and operations and maintenance of public use facilities continued.

13. CONEMAUGH RIVER LAKE, PA

Location. Dam is on Conemaugh River in Indiana and Westmoreland Counties, PA, 7.5 miles above junction of Conemaugh River and Loyalhanna Creek, which form the head of the Kiskiminetas River. It is about 2 miles northeast of Tunnelton, PA, and about 42 miles east of Pittsburgh, PA. Reservoir is in Westmoreland and Indiana Counties, PA. (See Geological Survey Charts for Latrobe, New Florence and Elders Ridge, PA.)

Existing Project. A flood control reservoir dam of concrete gravity type with a gate-controlled center spillway flanked by abutment sections joining valley sides and an earth embankment ending in right abutment. Authorized project is complete. Reservoir system is designed for protection of Pittsburgh and reduction of flood heights in upper Ohio Valley, generally. Present project lands consist of 7608.7 acres in fee and 522.8 acres in easements. Project authorized by Flood Control Acts of 1936 and 1938. For further project description see Annual Report for 1962, page 1217.

Local Cooperation. None required by law.

Licenses. A non-federal hydropower project utilizing Conemaugh Lake was constructed downstream of the dam under FERC Licenses 3207. The 15-megawatt project began commercial operation on February 6, 1989. It is owned by National Renewable Resources, Inc.

Operations During Fiscal Year. Operation & Maintenance, General: Reservoir was operated for benefit of flood control as required, and necessary

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repairs were made to structures and appurtenances. At the request of the Borough of Saltsburg, PA, the U.S. Congress added \$50,000 for the Pittsburgh District to conduct a 3-year study/test of special weekend water releases from Conemaugh Dam for downstream recreation. A real estate license and cooperating association agreement with the Conemaugh Valley Conservancy (CVC) for the construction of a 3.5 mile section of hiking/biking trail named the West Penn Trail were signed in FY00, and construction was completed in June 2002. In 2003 the lease was amended to include a switchback trail over the Bow Ridge Recreation Area and through the Dam Site Recreation Area to the western border of federal property. Construction of that section is currently ongoing and is expected to be completed in 2004. The CVC and other trail organizations are planning future expansion of the West Penn Trail to the eastern border of Conemaugh River Lake with a northern spur connection to the Hootlebug Trail. Estimated flood control benefits achieved by this reservoir for FY03 were \$6,423,000; total flood control benefits through September 2003, revised to reflect damages prevented in downstream districts as well as Pittsburgh District were \$1,531,353,000. Activities under reservoir management program comprising sanitation measures, conservation, land management and operation and maintenance of public use facilities were continued.

14. CROOKED CREEK LAKE, PA

Location. Dam is on Crooked Creek 6.7 miles above junction of creek with Allegheny River near Ford City, PA, and about 32 miles northeast of Pittsburgh, PA. (See Geological Survey Charts for Freeport and Elders Ridge, PA.)

Existing Project. A flood control reservoir dam of earth-fill type with separate uncontrolled saddle spillway and tunnel outlet works. Authorized project is complete. Reservoir is in operation as a unit of a coordinated reservoir system designed for protection of Pittsburgh and reduction of flood heights in upper Ohio Valley, generally. Construction of dam was started in March 1938 and completed in October 1940. Present project lands consist of 2,561.7 acres in fee and 100.22 acres in easements. Project was authorized by Flood Control Acts of 1936 and 1938. For further project description see Annual Report for 1962, page 1213.

Local Cooperation. None required by law

Operations During Fiscal Year. Operations & Maintenance, General: Reservoir was operated for benefit of flood control, as required, and necessary repairs were made to structures and appurtenances. In 2003 Gate # 2 was refurbished and installed by the District's Repair Party. Four new flat wire ropes were installed on the gate hoisting machinery. In-house labor initiated the backlog maintenance of cleaning and repairing Weir #1. Contracted labor was used to begin additional clearing of woody vegetation from the Emergency Spillway. The lease with Manor Township for the Armstrong Horse Park remained in effect. Congress has mandated the transfer of 97.48 acres of free land to Manor Township for operation of the Armstrong Horse Park. Estimated flood control benefits achieved by this reservoir for FY03 were \$2,492,000;

total benefits achieved through September 30, 2003, revised to reflect damages prevented in down stream districts as well as Pittsburgh District, were estimated at \$289,041,000. Activities under reservoir management program comprising sanitation measures, conservation, land management, and operation and maintenance of public-use facilities continued.

15. EAST BRANCH, CLARION RIVER LAKE, PA

Location. Dam is in Elk County, PA on East Branch of Clarion River above Middle Fork, 7.3 miles above junction of East and West branches of Clarion River at Johnsonburg, PA, and about 105 miles northeast of Pittsburgh, PA. Reservoir is in Elk County, PA. (See Geological Survey Chart for Mount Jewett, PA.)

Existing Project. A reservoir for flood control and low-water regulation. Dam is rolled-earthfill type with gate-controlled concrete tunnel under right abutment and a paved uncontrolled spillway on left abutment slope. Authorized project is complete. Reservoir is in operation for low-water regulation purposes in Clarion River Valley below and for flood control as a unit of a coordinated reservoir system for protection of Pittsburgh and upper Ohio Valley, generally. Construction of dam was started in June 1947 and completed in July 1952. Present project lands consist of 287.2 acres in fee and 1,296.7 acres in easements. Project was selected for construction under general authorization for Ohio River Basin in Flood Control Acts of 1938 and 1944. For further project description

see Annual Report for 1962, page 1206.

Local Cooperation. None required by law.

Operations During Fiscal Year. Operations & Maintenance, General: reservoir was operated for flood control and low-water regulation, as required; and necessary repairs were made to structures and appurtenances. Volunteers continued to apply limestone sand to tributary streams in an effort to neutralize acid mine drainage into the lake. In FY00 under a Cost Share Agreement between the District, US Forest Service, Willamette Industries, now known as Weyerhaeuser, Inc. and utilizing labor from the Federal Bureau of Prisons, the District began a modernization program in the campground. Twenty of thirty-two camp sites have been redesigned and enlarged with sixteen of the sites having 20/30/50 amp electrical service installed. Rehabilitation of non-electric sites will continue in FY04. Nine "walk-in" tent sites are planned which will bring the total campsites available to the authorized forty-one campsites. Congressman John Peterson, PA 5th Congressional District, secured funds to purchase a restroom/shower facility that is scheduled to be constructed in FY04 on the East Branch Campground. East Branch Lake was successful in securing a LECA agreement with the Elk County Sheriff's Office and they co-hosted the 7th Annual Elk County Rescue Weekend for emergency, rescue and other emergency services from local, regional, and other state agencies. Service Gates #3 and #4 were rehabilitated by the district repair party in addition to remedial repair to the service gate bulkhead. Some

reservoir management activity was performed throughout the year comprising sanitation measures, conservation, land management and operation of public-use facilities. Estimated flood control benefits achieved in FY03 were \$50,000; total benefits through September 30, 2003, revised to include damages prevented in downstream districts as well as Pittsburgh District, were \$73,906,000.

16. KINZUA DAM & ALLEGHENY RESERVOIR, PA & NY

Location. Dam site is on Allegheny River 7 miles above Warren, PA, and 198 miles above mouth of river at Pittsburgh, PA. Reservoir is in Warren and McKean Counties, PA, and Cattaraugus County, NY. (See Geological Survey Charts for Warren and Kinzua, PA-NY, and Randolph and Salamanca, NY.)

Existing Project. Reservoir provides flood control, low water regulation and recreation. Dam consists of a combination concrete gravity structure and rolled earth embankment with gate-controlled spillway and discharge conduits controlled by slide-gates in gravity section. Construction of project, initiated in February 1960, is complete. Construction of dam was started in September 1960 and completed in December 1965. Development of recreation area at Onoville under a cost-sharing agreement with Cattaraugus County was completed in June 1978. Present project lands consist of 2,646 acres in fee and easements over 22,420.0 acres. For further details see Annual Report for 1962, page 1202. Project was authorized by Flood Control Acts of 1936, 1938 and 1941.

Local Cooperation. None required by law.

Licenses. The Federal Power Commission granted a license to Pennsylvania Electric Company and Cleveland Electric Illuminating Company on December 28, 1965, for the joint construction, operation and maintenance of a 435-megawatt pumped-storage installation (FPC Project No. 2280). The project is complete. Present ownership is with First Energy Corporation.

Operations During Fiscal Year. Operations & Maintenance, General: Reservoir was operated for benefit of flood control and low water regulation, as required and necessary repairs were made to structures and appurtenances. A successful LECA was established with the Warren County Sheriff's Department in FY03. Kinzua Dam/Allegheny Reservoir hosted both the Pennsylvania and National Canoe Races in FY03. Estimated flood control benefits achieved by this reservoir for FY03 were \$439,000. Total flood control benefits for this reservoir through September 30, 2003 were \$949,835,000.

17. LOWER GIRARD DAM, OH

Location. Lower Girard Lake (formerly called Liberty Lake) is located in the northeast section of Ohio in Trumbull County in the City of Girard which lies just northwest of the City of Youngstown, OH. Lower Girard Lake Dam is located on Squaw Creek approximately 5,000' downstream of Girard Lake and approximately 2 miles upstream from Squaw Creek's confluence with the Mahoning River.

Existing Project. Lower Girard Lake together with Girard Lake, located immediately upstream, is a system of water supply reservoirs that was constructed in 1917 and operated by the Ohio Water Service Company to provide process water to local steel mills and industry. The Lower and Upper Girard Dams were purchased by the City of Girard from the Consumer Ohio Water Company in 1995. The dam is an Ambersen type buttress dam. It has been determined that the dam requires rehabilitation to meet modern dam safety standards.

Local Cooperation. The City of Girard, OH is the non-federal sponsor for this project. The city owns the dam and the lake impounded by it. A Design Agreement was executed in July 1998 with cost-sharing for the design portion set at 75% federal and 25% by the city.

Operations During Fiscal Year. In WRDA 1998 Congress added \$2,500,000 for the Corps to investigate the safety of, and rehabilitate the Lower Girard Dam. The "Special Report and Environmental Assessment" recommended a rehabilitation plan to bring the dam up to present safety standards. Total cost for design and rehabilitation is estimated at \$12,600,000. However, the economic analysis for the plan did not result in a favorable B/C ratio. Subsequently, in March 2002 the ASA(CW) determined that the least cost plan to render the dam safe would be to breach and decommission it at a cost of \$1,100,000. During FY03 the City of Girard administration worked with the City Council and the Corps to propose alternatives to a full-breach which would leave the dam safe, but still retained. Presently, a \$3,500,000 proposal is to lower the crest of the dam twelve feet which will result in a smaller but safe dam.

18. LOYALHANNA LAKE, PA

Location. Dam is on Loyalhanna Creek, 4.5 miles above junction of creek with Conemaugh River at Saltsburg, PA, and about 29 miles east of Pittsburgh, PA. Reservoir is in Westmoreland County PA. (See Geological Survey Chart for Latrobe, PA).

Existing Project. A flood control reservoir dam of concrete gravity type with a gate-controlled center spillway flanked by abutment sections joining valley sides, and an earth embankment section ending in left abutment. Authorized project is complete. Reservoir is in operation as a unit of a coordinated reservoir system designed for protection of Pittsburgh and reduction of flood heights in upper Ohio Valley, generally. Construction of dam was started in October 1939 and completed in June 1942. Present project lands consist of 3,330.8 acres in fee and easements over 86.7 acres. Project was authorized by Flood Control Acts of 1936 and 1938. For further project description see Annual Report for 1962, page 1219.

Local Cooperation. None required by law.

Operations During Fiscal Year. Operations & Maintenance, General: Reservoir was operated for benefit of flood control, as required and necessary repairs were made to structures and appurtenances. At the request of the Borough of Saltsburg, PA, the U.S. Congress added \$50,000 for the Pittsburgh District to conduct a 3-year study/test of special weekend water

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releases from Loyalhanna Dam for downstream recreation. Estimated flood control benefits achieved by this project for FY03 were \$3,240,000. Total benefits for this reservoir through September 30, 2003 were \$323,945,000. Activities under reservoir management program comprising sanitation measures, conservation, land management and operation and maintenance of public use facilities continued.

19. MAHONING CREEK LAKE, PA

Location. Dam is on Mahoning Creek in Armstrong County, PA, 22.9 miles above junction of creek with Allegheny River. It is about 6.50 miles southeast of New Bethlehem, PA, and about 51 miles northeast of Pittsburgh, PA. Reservoir is in Armstrong, Indiana and Jefferson Counties, PA. (See Geological Survey Charts for Rural Valley and Smicksburg, PA).

Existing Project. A flood control reservoir dam of concrete gravity type with a gate-controlled center spillway flanked by abutment sections joining valley sides. Authorized project is complete. Reservoir is in operation as a unit of a coordinated reservoir system designed for protection of Pittsburgh and reduction of flood heights in upper Ohio Valley, generally. Construction of dam started in February 1939 and was completed in June 1941. Present project lands consist of 2,519.36 acres in fee and easements over 83.5 acres. Project was authorized by Flood Control Acts of 1936 and 1938. For further project description see Annual Report for 1962, page 1210.

Operations During Fiscal Year. Operations & Maintenance, general: reservoir was operated for benefit of flood control, as required and necessary repairs were made to structures and appurtenances. Estimated flood damages prevented by this project for FY03 were \$1,299,000; total benefits through September 30, 2003, revised to reflect damages prevented in downstream districts as well as Pittsburgh District, were \$430,589,000. Activities under reservoir management program comprising sanitation measures, conservation, land management and operation and maintenance for public-use facilities continued.

20. MICHAEL J. KIRWAN DAM & RESERVOIR, OH

Location. Dam site is on West Branch of Mahoning River which joins Mahoning River at Newton Falls, OH. It is 11 miles above mouth of branch and about 15 miles upstream from Warren, OH. Reservoir is in Portage County, OH. (See Geological Survey Charts for Ravenna, Garrettsville, Chagrin Falls, and Kent, OH.)

Existing Project. Reservoir provides flood control, low-water regulation and recreation. Dam consists of a rolled-earth embankment structure with gate-controlled outlet works and an uncontrolled side-hill spillway through left abutment. Authorized project is completed and in operation for flood control and low water regulation purposes. Present project lands consist of 6,298.9 acres fee and easements over 27.9 acres. For further description see Annual Report for 1962, page 1231 (West Branch Reservoir, Mahoning River, Ohio). Project was authorized by 1958 Flood Control Act (H. Doc. 191, 85th Cong. 1st sess.), with local contribution requirements modified by Flood Control Act of 1960.

Federal costs of completed project are \$17,370,000. Local interests contributed \$3,230,000 during period of construction bringing initial project cost to \$20,600,000. The State of Ohio has a lease from the Secretary of the Army for development and operation of recreation facilities in the reservoir area.

Local Cooperation. Local interests must contribute \$5,200,000 for water pollution abatement and for municipal and industrial water supply purposes, of which \$3,230,000 was paid in cash during construction. Unpaid balance at time project is placed in operation, \$1,970,000, will be paid in cash at that time or on an annual basis. Of the unpaid balance of contributed funds due and payable, payment in full of Trumbull County's share in the amount of \$663,040 has been received. Mahoning County elected to pay their share (\$1,306,960) in 50 annual installments of \$50,323.32, including interest.

Operations During Fiscal Year. Operations & Maintenance, General: reservoir was operated for benefit of flood control and low-flow augmentation, as required and necessary repairs were made to structures and appurtenances. Estimated flood control benefits achieved by this project for FY03 were \$111,424,000. Total benefits for this reservoir through September 30, 2003 were \$287,760,000. Activities under reservoir management program comprising sanitation measures, conservation, land management, and operation and maintenance of public-use facilities continued. This work was limited in scope as state of Ohio has jurisdiction over most of the recreation in reservoir area.

21. MOSQUITO CREEK LAKE, OH

Location. Dam is on Mosquito Creek, 12.6 miles above junction of creek with Mahoning River at Niles, OH, and about 18 miles northwest of Youngstown, OH. (See Geological Survey Charts for Bristolville and Kinsman, OH, and PA.)

Existing Project. A reservoir for flood control, low-water regulation and water supply storage. Dam is rolled-earthfill type with outlet facilities through dam, and an uncontrolled natural wasteway to discharge overflow from reservoir. Authorized project is complete and in operation for flood control and low-water regulation purposes in industrialized Mahoning and Beaver Valleys below. Construction of dam was started in July 1943 and was ready for beneficial use in January 1944. Present project lands consist of 11,180.4 acres in fees and easements over 276.0 acres. State of Ohio has a license from Secretary of the Army for development and operation of recreation facilities in reservoir area. Project was selected for construction under general authorization for Ohio River Basin in 1938 Flood Control Act. For further project description see Annual Report for 1962, page 1228.

Local Cooperation. There is a water supply agreement with the City of Warren for municipal and industrial water storage in an amount equal to 11.1% of total reservoir storage. The City makes annual payments for this storage. No other local cooperation is required at completed project; however, future recreational developments are subject to certain

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conditions of non-Federal cost-sharing under Federal Water Project Recreation Act of 1965.

Operations During Fiscal Year. Operation & Maintenance, General: Reservoir was operated for benefit of flood control and low-flow regulation as required and necessary repairs were made to structures and appurtenances. Estimated flood control benefits achieved by this reservoir for FY03 were \$15,933,000. Total flood control benefits for this reservoir through September 30, 2003 were \$138,832,000. Activities under reservoir management program comprising sanitation measures, conservation, land management and operation and maintenance of certain public-use facilities continued. This work was limited in scope as State of Ohio has jurisdiction over most of the recreation in reservoir area.

22. OHIO RIVER BASIN (PITTSBURGH DISTRICT)

Location. A series of dikes, floodwalls, channel improvements, and reservoirs/lakes in Ohio River Basin within Pittsburgh District.

Existing Project. Individual projects considered in comprehensive plan within Pittsburgh District. (See Tables 18-B, 18-E and 18-K on Acts authorizing existing projects, local protection projects and reservoirs.)

Operations During Fiscal Year. New Work: none by the United States except as stated in individual projects. Completed local protection projects operated and maintained by local interests, including those projects for which individual reports have been included.

23. SHENANGO RIVER LAKE, PA & OH

Location. Dam is on Shenango River about 0.8 mile above Sharpsville, PA, and about 33 miles above junction of river with Mahoning River, which unite near New Castle, PA, to form Beaver River. Reservoir is in Mercer County, PA and Trumbull County, OH. (See Geological Survey Chart for Kinsman, OH, and Shenango, PA.)

Existing Project. A reservoir for flood control, low-flow augmentation and recreation. Dam consists of a concrete gravity structure with gate-controlled outlet works and an uncontrolled center spillway section. Authorized project is complete. Reservoir is in operation for low-water regulation purposes in Shenango River valley below and for flood control as a unit of a coordinated reservoir system for protection of Shenango River valley and the Beaver and upper Ohio River Valley, generally. Construction of dam was started in March 1963 and completed in May 1965. Present project lands consists of 14,485.94 acres in fee and easements over 198 acres. Approximately 65.94 acres in abandoned railroad right-of-way were acquired for project use. Future work consists of completion of project lands of any additional recreation facilities as required to serve the public needs. For further project description, see Annual Report for 1962, page 1230. Project was authorized by 1938 Flood Control Act.

Local Cooperation. None required by law.

Operations During Fiscal Year. Operations and

Maintenance, General: Reservoir was operated for benefit of flood control and low-flow augmentation, as required and necessary repairs were made to structures and appurtenances. Four comfort station roofs and one picnic shelter roof were replaced with a SeaBees Reserve unit providing the labor. Preparation work was done for the replacement of the standby generator unit. Estimated flood damages prevented in FY03 were \$1,874,000. Estimated flood control benefits achieved through September 30, 2003 revised to reflect damages prevented in downstream districts as well as Pittsburgh District, were \$102,964,000. Activities under reservoir management program comprising sanitation measures, conservation, land management and operation and maintenance continued.

24. STONEWALL JACKSON LAKE, WV

Location. In Lewis County, North Central West Virginia, on the West Fork River, which joins the Tygart River at Fairmont, WV to form the Monongahela River. Dam site is located on Route 30 at Brownsville, WV, about 4 miles south of Weston and 72 miles above mouth of West Fork River at Fairmont, WV. (See Geological Survey Charts for Weston and Crawford, WV.)

Existing Project. Provides for construction of a reservoir for flood control, water supply, water quality control, area redevelopment and recreation. Dam is concrete gravity type, 95' high and 620' long. Outlet works consist of two multi-level sluices and three fixed-level sluices, spillway is uncontrolled. Storage capacity is 74,650 acre-feet controlling an area of 102 square miles. A station hydropower plant completed in 1995 supplies power to the dam, with excess power being sold to an electric utility company. Project was authorized by 1966 Flood Control Act. Estimated initial federal cost for new work (1991) is \$231,000,000 (includes an estimated \$24,900,000 reimbursement by non-federal interests.) Present project lands consist of 20,451 acres in fee and easements over 398 acres.

Local Cooperation. The reservoir contains 2,200 acre feet of storage designated for the purpose of municipal and industrial water storage. The storage is not under contract and there are no prospects of near-term water supply agreements. In accordance with the Federal Water Project Recreation Act local interests are required to administer project land and water areas for recreation and fish and wildlife enhancement to make arrangements for repayment, under the provisions of the Water Supply Act of 1958, as amended, of that part of the construction cost and annual operation, maintenance and replacement costs allocated to municipal and industrial water supply, an amount presently estimated at \$4,350,000 for construction; and \$15,000 annually for operations, maintenance and replacements. Also, in accordance with Federal Water Project Recreation Act, local interests are required to administer project land and water areas for recreation and fish and wildlife enhancement, pay, contribute in kind or repay (which may be through user fees) with interest, one-half of the separable first costs of the reservoir project allocated to recreation and fish and wildlife enhancement, an amount presently estimated at \$24,810,000, bear all costs of operation, maintenance and replacement of

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recreation and fish and wildlife land and facilities, the amount involved being currently estimated on an average annual basis to be \$457,000, exercise to the full extent of their legal capability, control against removal of stream flow made available for water quality control; and contribute to the control of pollution of streams subject to low-flow augmentation by adequate treatment or other methods of controlling wastes at their source. The requirements of Section 221 were amended in 1971 to exempt assurances for future demands for water supply pursuant to the Water Supply Act of 1958 from the contractual requirements of the Act. Accordingly, the city of Weston, WV has provided assurances that it will enter into a water supply contract with the Department of the Army within a period of time which will permit paying out the costs allocated to the water supply storage within the life of the project. A recreation cost-sharing contract, in accordance with the requirements of the Federal Water Project Recreation Act, PL 89-72, was executed by the State of West Virginia on March 27, 1977. Local cooperation assurances for recreation cost-sharing were executed by the Governor and Attorney General of West Virginia on May 29, 1973. In this connection, Section 8 of PL 92-222 deleted the requirement that the State of West Virginia "hold and save the United States free from damages resulting from water rights claims due to construction and operation of the project." Legislation relieving Stonewall Jackson Lake, WV, project of the requirements of Section 221, PL 96-611 was contained in Water Resources Development Act of 1974 signed by the President on March 7, 1974.

Operations During Fiscal Year. New Work: The Corps worked with the State of West Virginia to revise the Master Plan to incorporate higher revenue producing recreation facilities, including a lodge, golf course, cabins and camping. The revised Master Plan was approved by the Corps in 1992. The FY92 Energy and Water Development Appropriations Act allows the state cost-sharing credits for all of these facilities except the golf course. In March 1994, the State and the Assistant Secretary of the Army for Civil Works executed an amendment to the 1977 Stonewall Jackson Lake Recreation Cost-Sharing Contract to reflect these credits. The state must design and build the approved remaining recreation facilities by March 2006, in accordance with the schedule and conditions set forth in the amended contract. The state broke ground in July 2001 for the \$50,000,000 Stonewall Resort, which includes a 200-room lodge, conference center, spa, cabins and more camping areas, in addition to a championship 18-hole golf course that is not eligible for cost share credit. By the end of FY02, the state had essentially completed and opened to the public all facilities except additional camping.

Activities under reservoir management program comprising sanitation measures, conservation, land management, and operation and maintenance of public-use facilities continued. This work was limited in scope as State of West Virginia has jurisdiction over most of the recreation in reservoir area.

Estimated flood control benefits achieved for this project for FY03 were \$25,601,000; total flood control

benefits through September 30, 2003, were \$127,957,000.

25. TIONESTA LAKE, PA

Location. Dam is on Tionesta Creek, 1.25 miles above junction of creek with Allegheny River at Tionesta, PA, and about 78 miles northeast of Pittsburgh, PA. Reservoir is entirely in Forest County, PA. (See Geological Survey Charts for Tionesta, Tidoute and Sheffield, PA.)

Existing Project. A flood control reservoir dam of earthfill type with separate uncontrolled saddle spillway and tunnel outlet works. Authorized project is complete. Reservoir is in operation as a unit of a coordinated reservoir system designed for protection of Pittsburgh and reduction of flood heights in upper Ohio Valley, generally. Construction of dam was started in May 1938 and completed in January 1941. Present project lands consists of 2,794.77 acres in fee and easement over 13.1 acres. Approximately 2.53 acres of fee were disposed at the project. Future work consists of provision on project lands of additional recreational facilities as required to serve public needs. Project was authorized by Flood Control Acts of 1936 and 1938. For further project description see Annual Report for 1962, page 1203.

Local Cooperation. None required by law.

Operations During Fiscal Year. Operation & Maintenance, General: reservoir was operated for benefit of flood control, as required and necessary repairs were made to structures and appurtenances. Reservations in the Tionesta Recreation Area Campground using the National Recreation Reservation Service (NRRS) were suspended in FY02 due to renovations in this campground. These renovations were funded by a Congressional add of \$1,218,000 and included restroom renovations, additional electrical service and new electric, water and sewage service to selected campsites. The first Law Enforcement Cooperative Agreement (LECA) in nearly 20 years was initiated during FY02. This was a welcome service addition to the visitor assistance program. Estimated flood control benefits achieved by this project for FY03 were \$566,000. Total flood control benefits through September 30, 2003, revised to include downstream districts, were \$420,350,000. Activities under reservoir management program comprising sanitation measures, conservation, land management and operation and maintenance of public-use facilities continued.

26. UNION CITY DAM, PA

Location. In Erie County, northwestern PA, on French Creek, a tributary of Allegheny River. Dam site is 24 miles upstream from Cambridge Springs, PA, and 41 miles upstream from Meadville, PA. (See Geological Survey Chart for Union City, PA - NY.)

Existing Project. A flood control reservoir dam of earth embankment non-gated type with uncontrolled side-channel spillway. Outlet works consist of a lower outlet located in valley floor constructed of reinforced concrete conduit 8' by 4.5' and an upper outlet consisting of an uncontrolled slot 9.5' wide through the north end of the ogee weir in the spillway. Dam is 1,420' long at top rising 88' above streambed and

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provides gross capacity of 47,640 acre-feet from a drainage area of 222 square miles. Project authorization was modified to provide for a conservation pool and addition of recreation facilities. On November 5, 1974, a referendum proposal was defeated by the constituents of Erie County in regard to the cost-sharing for construction of recreation facilities. In view of the foregoing, all action toward implementation of the authorized project modification was discontinued. Reservoir is operated as one of a two-reservoir system for reduction of flood stages in French Creek Basin between dam site and mouth, Allegheny River from Franklin, PA, to Pittsburgh, PA, inclusive, and upper Ohio River Valley. Initial highway relocations were completed in October 1968 and remaining highway relocations were completed in May 1972. Construction of the dam was started in July 1968 and completed in September 1971. Present project lands consist of 161.4 acres in fee and easements over 2,410.29 acres. Existing project was authorized by 1962 Flood Control Act.

Local Cooperation. Local interests are required to inform affected interests in French Creek Basin at least annually, that the system of reservoirs of which Union City Dam is a part, will not provide protection against maximum floods. On November 10, 1964 the Department of Forests and Waters of the Commonwealth of Pennsylvania furnished formal assurances of local cooperation in respect to notifying local interests at least annually that the system of reservoirs will not provide protection against maximum floods. A referendum on the ballot during the November 1974 election regarding the approval to cost-share the maintenance of a summer pool was defeated by the local voters.

Operations During Fiscal Year. Operation & Maintenance, General: maintenance of the structure and appurtenances was performed as required. This dam acted as an uncontrolled detention type dam during the fiscal year. Estimated flood control benefits achieved for this project for FY03 were \$613,000. Total flood control benefits for this reservoir through September 30, 2003, revised to include downstream districts, were \$48,192,000.

27. WOODCOCK CREEK LAKE, PA

Location. In Crawford County, northwestern PA, on Woodcock Creek, a tributary of French Creek. Dam site is about 4.1 miles above mouth of Woodcock Creek and about 5 miles northeast of Meadville, PA. (See Geological Survey Chart for Meadville, PA.)

Existing Project. A flood-control reservoir dam of rolled-earth embankment type, gate-controlled outlet works with a 6 foot-wide by 7.75 foot-high conduit and uncontrolled saddle spillway on the left abutment. Dam is 4,650' long at top rising 90' above streambed and provides for gross capacity of 20,000 acre-feet from a drainage area of 46 square miles. Reservoir is operated as one of a two-reservoir system for reduction of flood stages in French Creek Basin between dam site and mouth. Allegheny River from Franklin, PA, to Pittsburgh, PA, inclusive, and upper Ohio River Valley. Authorized project is complete. Construction of dam was started in July 1970 and completed in July 1973.

Land acquired for project consists of 1,731.5 acres in fee and easements over .56 acres. Project was authorized for flood control and recreation by 1962 Flood Control Act. Storage for water quality control was added to the project during the preconstruction planning stage.

Local Cooperation. Local interests must inform affected interests in French Creek Basin at least annually, in a manner satisfactory to District Engineer, that a system of reservoirs of which Woodcock Creek is a part, will not provide protection against maximum floods. Pennsylvania Department of Forests and Waters assumed responsibility of local cooperation for project.

Operations During Fiscal Year. Operation & Maintenance, General: maintenance of the structure and appurtenances was performed as required. Estimated flood control benefits achieved by this project for FY03 were \$188,000. Total flood control benefits achieved by this project through September 30, 2003, revised to include downstream districts were \$27,057,000. Activities under reservoir management program comprising sanitation measures, conservation, land management and operation and maintenance of public use facilities continued.

28. YOUGHIOGHENY RIVER LAKE, PA & MD

Location. Dam is on Youghiogheny River about 74.2 miles above its junction with Monongahela River at McKeesport, PA. It is 1.2 miles upstream from Confluence, PA, and about 57 miles southeast of Pittsburgh, PA. Reservoir is in Fayette and Somerset Counties, PA, and Garrett County, MD. (See Geological Survey Charts for Confluence, PA, Accident, MD, West Virginia and Pennsylvania.)

Existing Project. Reservoir for flood control, low-flow augmentation, pollution abatement, and recreation purposes. Dam is rolled-earthfill type with separate uncontrolled side channel spillway and tunnel outlet works. Authorized project is complete. For flood control, reservoir is operated as a unit of a coordinated reservoir system designed for protection of Pittsburgh and reduction of flood heights in upper Ohio Valley, generally. Construction of dam was started in June 1940 and completed in May 1944. Present project lands consist of 3,914.9 acres in fee and easements over 0.62 acres.

Project was selected for construction under general authorization for Ohio River Basin in 1938 Flood Control Act. For further project description see Annual Report for 1962, page 1223.

Local Cooperation. None required.

Licenses. A non-federal hydropower project utilizing releases from Youghiogheny River Lake was constructed in accordance with FERC License 3623. D/R Hydro Company is the authorized representative of the Licensee, Youghiogheny Hydroelectric Authority, and is responsible for operation of the plant. It has a 10-megawatt capacity. The plant began commercial operation on December 7, 1989.

Operations During Fiscal Year. Operations & Maintenance, General: Reservoir was operated for benefit of flood control and low flow augmentation, as

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required and necessary repairs were made to structures and appurtenances. In-house labor rehabilitated 24 campsites at the Outflow Recreation Area to make them high impact. The Outflow and Tub Run campgrounds operated on-line with the National Recreation Reservation Service (NRRS) for the FY03 recreation season. Youghiogheny Lake is designated as one of 13 Corps lakes in the country participating in the National Lake pilot program. The Lewis and Clark reenactor traveling the country on horseback made Youghiogheny his first stop in the Ohio River basin. The Center for Disease Control used the lake as one of the carbon monoxide test sites for monitoring motorboat CO hazards. Physical security at the dam was improved using Homeland Security funding. Estimated flood control benefits achieved by this reservoir for FY03 were \$5,166,000. Total flood control benefits achieved by this project through September 30, 2003 revised to include damages prevented in downstream districts, were \$451,109,000. Total recreation benefits for FY03 were \$8,400,000. Activities under reservoir management program comprising sanitation measures, conservation, land management and operation and maintenance of public use facilities continued.

29. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Flood Control Act of June 22, 1936, and subsequent acts require local interests to furnish assurances that they will maintain and operate certain local protection projects after completion in accordance with regulations prescribed by Secretary of the Army. District Engineers are responsible for administration of these regulations within boundaries of their respective districts. Inspections were made of completed units transferred to local interests for maintenance and operation and local interests were advised, as necessary, of measures required to maintain these projects in accordance with standards prescribed by regulations. (See Table 18-L for dates of inspections.)

Costs for this fiscal year were \$125,000; total cost to September 30, 2003 was \$2,525,208.

30. OTHER AUTHORIZED FLOOD CONTROL PROJECTS

See Table 18-E on other authorized flood control projects.

31. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATIONS

For emergency bank protection pursuant to Section 14, 1946 Flood Control Act, PL 79-526, as amended

See Table 18-M.

For flood control activities pursuant to Section 205, 1948 Flood Control Act, PL 80-858, as amended

See Table 18-M.

For aquatic ecosystem restoration pursuant to Section 206, 1996 WRDA, PL 104-303, as amended

See Table 18-M.

For modification for improvement of the environment pursuant to Section 1135, 1986 WRDA, PL 99-662, as amended

See Table 18-M.

For flood control and coastal emergencies pursuant to 1955 Emergency Flood Control Funds Act, PL 84-99 and antecedent legislation

See Table 18-M.

Environmental

32. CONEMAUGH RIVER BASIN, NANTY GLO, PA ENVIRONMENTAL RESTORATION

Location. Conemaugh River Basin is an area of 1,372 square miles located in southwestern Pennsylvania in Cambria and Indiana Counties. The Nanty Glo project is located in the headwaters of South Branch Blacklick Creek in the Borough of Nanty Glo, Cambria County.

Existing Projects. Authorized by WRDA 1992 (PL 102-580), Section 331, the Conemaugh River Basin Reconnaissance Report completed in February 1994 identified seven sites as candidates for ecosystem restoration studies. Remediation of a site at Nanty Glo, PA was identified as highest priority. The project involves restoration of environmental damage caused by the abandoned Webster Coal Mine. Its discharge accounts for much of the acid load in the creek and approximately 5% of the acid load downstream at the Corps' Conemaugh River Lake. Water from the mine is discharged into Pergrin Run, approximately 1,300' upstream from its confluence with South Branch Blacklick Creek. The project will involve a passive treatment system consisting of dual vertical flow ponds and a wetland. The project will treat the Webster Mine discharge, design flow of 450 gallons per minute with a PH of 3.0. The vertical flow ponds provide 3.9 acres of surface treatment area and the wetland provides 2.3 acres of surface treatment area. A pipe will carry water from Webster Mine to the vertical flow ponds. The PH of the treated design flow discharged from the wetland to Pergrin Run will be 6.5 Project implementation will restore the lower seven miles of the creek and promote return of a viable fishery to the waters.

Local Cooperation. The non-federal cost-sharing sponsor is the Cambria County Conservation and Recreation Authority (CCCRA). CCCRA has been the cost-sharing partner on this project since inception in 1994. The CCCRA will cost share 25% of total project costs.

Operations During Fiscal Year. Real estate certified and construction contract was awarded in September 2002. Notice to Proceed issued September 20, 2002. Amount of contract as awarded is \$2,979,997. Contractor is Charles J. Merlo Construction Incorporated. Length of construction contract is 660 calendar days with completion scheduled for August 2004.

33. SOUTH CENTRAL, PA ENVIRONMENTAL IMPROVEMENT WORK

Location. Projects under this program in the Pittsburgh District are located in the South Central, PA counties of Allegheny, Armstrong, Cambria, Fayette, Indiana, Somerset and Westmoreland.

Existing Projects. Section 313 authorizes the Secretary of the Army to establish a program to provide design and construction assistance to non-federal interests in south central Pennsylvania including projects for waste water treatment and related facilities, water supply, storage, treatment, and distribution facilities, and surface water resource protection and development. The following projects were authorized under Section 313 of the Water Resources Development Act of 1992. The Blacklick Valley Municipal Authority project consists of the installation of a sanitary sewer system. The total project cost is estimated at \$1,700,000 (\$1,250,000 federal; \$450,000 non-federal). The Cambria Somerset Authority project consists of the rehabilitation of deteriorating sections of the pipeline which feeds commercial industries in and around the city of Johnstown, PA. The total project cost is estimated at \$6,700,000 (\$5,000,000 federal; \$1,700,000 non-federal). The Armstrong County project consists of the separation of the combined sewer outflow in the town of New Bethlehem. The total project cost is estimated at \$ 4,000,000 (\$3,000,000 federal; \$1,000,000 non-federal). The Georges Creek Municipal Authority project consists of the construction of a sewage treatment plant and collection system. The total project cost is estimated at \$4,000,000 (\$3,000,000 federal; \$1,000,000 non-federal). The Kittanning-Plumcreek Water Authority project involves the design and construction of 62,000 linear feet of waterline along Route 422 from near Kittanning to the small village of Whitesburg, with several spurs along certain populated township roads which branch off Route 422. Also required is a booster pumping station and a ±250,000 gallon water storage tank. The total project cost is \$3,200,000 (\$2,400,000 federal; \$800,000 non-federal). The Indiana County Municipal Services Authority has identified Armagh, Heilwood and Marion Center as areas in need of sanitary collection systems. The total estimated project costs are \$2,000,000 (\$1,500,000 federal; \$500,000 non-federal). Additional projects identified for FY03 funding include Puketa Creek, Pine Township, Derry Township, Jefferson Township, Northmoreland Park, Unity Township, Paint Township, Menallen Township, Graysille Municipality, Mount Pleasant and Franklin Business Park.

Local Cooperation. Legislation requires the project to be cost shared at no more than 75% federal funds and a minimum of 25% non-federal funds. Project Cooperation Agreements are executed between the Corps of Engineers and the non-federal sponsors. Operation and maintenance of the projects will be at 100% non-federal costs.

Operations during Fiscal Year. Design/construction PCA's were executed for Puketa Creek. Construction is continuing for Quemahoning pipeline, Whitesburg and Blacklick.

34. THREE RIVERS WET WEATHER DEMONSTRATION PROJECT

Location. The Three Rivers Wet Weather Demonstration Program administers grants to Allegheny County communities for innovative, cost-effective, watershed-based methods of wet weather sewer overflow elimination and management.

Existing Project. The District is working with the Three Rivers Wet Weather Demonstration Program under Section 219 of the 1992 WRDA, as amended. Under this program, the District is authorized to provide assistance to non-federal interests for carrying out water-related environmental infrastructure and resource protection and development project in Allegheny County. These projects include wastewater treatment and related facilities and water supply, storage, treatment and distribution facilities.

Local Cooperation. For the current study phase the Three Rivers Wet Weather Demonstration Program identified the Allegheny County Sanitary Authority (ALCOSAN) as the cost sharing partner for the Sheraden Park effort. The project is cost shared 75% federal and 25% non-federal.

Operations During Fiscal Year. The District is currently working through the Three Rivers Wet Weather Demonstration Program to identify potential projects in Allegheny County. The 1st project identified is Sheraden Park. A study was completed in Sep 2003 which identified the most cost effective manner to remove storm water from the existing combined sanitary sewer system. In addition to separating storm water from the sanitary sewer, the study of a stream day lighting project is to be completed under Sec 206 Authority. Stream day-lighting is a process where streams that are currently piped underground are restored to the surface, and reintegrated into the natural systems and communities. The next phase to the Sheraden Park Project will be the completion of plans and specifications. These will be initiated in FY04 and completed in early FY05. Project will be scheduled for construction in Spring FY05 providing funds are available. A second project Homestead Run has been identified. A letter report will be prepared in FY04 with a design agreement to prepare plans and specifications to follow. Other projects will be identified as funds become available.

35. FORMERLY USED SITES REMEDIAL ACTION PROGRAM (FUSRAP)

Location. Shallow Land Disposal Area (SLDA) is a 44-acre site in Armstrong County, Pennsylvania, about 23 miles east-northeast of Pittsburgh.

Existing Project. The site includes ten trenches containing estimated 23,500-36,000 cubic yards of potentially contaminated waste and soil. The total trench surface-area is 1.2 acres. The trenches are separated into two general areas; one area containing trenches 1 through 9 and a second area containing trench 10. Uranium and thorium contaminated wastes consisting of process wastes, equipment, scrap and trash from the nearby Apollo nuclear fuel fabrication

PITTSBURGH, PA, DISTRICT

facility were disposed of in the SLDA between 1961 and 1970. The uranium in the trenches is present at various levels of enrichment from highly depleted to highly enriched. Americium and plutonium, whose presence is attributed to storage of equipment used in Parks Facility, have been detected in surface soils in trench 10 area. Nuclear Materials and Equipment Corporation (predecessor of current owner BWX Technologies) conducted the disposals according to the Atomic Energy Commission regulations. The NRC license requires BWXT to properly maintain the site to ensure the protection of workers and the public.

PL 107-117, Section 8143 directs the Corps of Engineers to clean up radioactive waste at the SLDA site, consistent with the Memorandum of Understanding between the United States Nuclear Regulatory Commission and United States Army Corps of Engineers dated July 5, 2001 for the coordination of cleanup and decommissioning of FUSRAP sites with NRC-licensed facilities and in accordance with Section 611 of PL 106-60. The SLDA site will be remediated following the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) process.

Local Cooperation. The project is currently conducted with congressionally authorized FUSRAP funds.

Operations During Fiscal Year. The site designation and preliminary assessment stages of the CERCLA process are completed and the project is currently at the remedial investigation stage. The feasibility study, proposed plan, record of decision, remedial design, remedial action and project closeout are forthcoming.

General Investigations

36. SURVEYS

Navigation Studies	\$1,091,495
Flood Damage Prevention Studies	75,438
Special Studies	914,912
Review of Authorized Projects	20,666
Miscellaneous Activities	78,204
Coordination with other Federal Agencies	43,356

Total Federal Cost for Fiscal Year \$2,224,071

37. COLLECTION & STUDY OF BASIC DATA

Federal costs this fiscal year were \$105,109 for flood plain management services.

38. PRECONSTRUCTION, ENGINEERING & DESIGN

Mon River, WV	\$4,860
Weirton Port, WV	6,150

Total Federal Cost for Fiscal Year \$11,010

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 18-A

COST & FINANCIAL STATEMENT

Section in Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sep. 30, 2003
Navigation							
1.	Allegheny River, PA	New Work					
		Approp.	---	---	---	---	18,157,860 ¹
		Cost	---	---	---	---	18,157,860 ¹
		Maint.					
		Approp.	11,052,000	13,132,152	6,119,429	5,727,000	208,465,324 ²
		Cost	13,984,568	13,126,688	5,996,649	5,843,525	208,437,455 ²
3.	Monongahela River, PA & WV	New Work					
		Approp.	45,465,000	57,402,000	37,379,000	36,590,000	649,325,835 ³
		Cost	45,018,588	58,365,732	38,246,302	36,688,840	639,782,291 ⁴
		Maint.					
		Approp.	13,447,000	14,599,264	13,029,101	12,947,000	366,683,222 ⁵
		Cost	13,429,900	14,610,760	12,883,205	12,961,717	366,541,836 ⁶
		Major Rehab.					
		Approp.	---	---	---	---	15,857,000
		Cost	---	---	---	---	15,857,000
5.	Tygart Lake, WV	New Work					
		Approp.	2,070,000	3,948,000	546,000	(5,000)	28,059,932 ⁷
		Cost	2,056,653	4,005,181	474,252	41,181	28,022,533 ⁷
		Maint.					
		Approp.	1,690,000	1,012,327	1,102,915	1,447,000	27,690,483 ⁸
		Cost	1,698,084	1,012,981	1,098,994	1,425,202	27,661,625 ⁸
		Major Rehab.					
		Approp.	---	---	---	---	89,000
		Cost	---	---	---	---	88,999
Flood Control – Local Protection							
	Chartiers Creek, PA	New Work					
		Approp.	---	---	---	---	30,818,153 ⁴¹
		Cost	---	---	---	---	30,818,153 ⁴¹
7.	Elkins, WV	New Work					
		Approp.	---	---	---	---	1,772,627
		Cost	---	---	---	---	1,772,627
		Maint.					
		Approp.	16,000	15,966	18,000	16,000	438,158
		Cost	16,254	11,766	19,479	18,933	438,138
8.	Johnstown, PA	New Work					
		Approp.	---	---	---	---	8,865,388 ⁹
		Cost	---	---	---	---	8,865,388 ⁹
		Maint.					
		Approp.	1,008,000	262,972	113,500	1,633,000	10,961,662
		Cost	1,036,127	265,309	113,415	1,625,223	10,965,855
		Major Rehab.					
		Approp.	8,832,000	6,591,000	989,000	1,322,000	36,408,000 ⁴³
		Cost	8,940,917	6,695,566	944,566	1,088,784	36,067,833 ⁴⁴
9.	Punxsutawney, PA	New Work					
		Approp.	---	---	---	---	3,586,107 ¹⁰
		Cost	---	---	---	---	3,586,107 ¹⁰
		Maint.					
		Approp.	12,000	2,537,972	15,000	13,000	1,721,569 ¹¹
		Cost	16,864	317,657	14,710	12,968	1,721,220 ¹¹
10.	Saw Mill Run, Pittsburgh, PA	New Work					
		Approp.	243,000	2,754,000	6,127,000	4,470,435	14,155,435 ⁶
		Cost	197,563	554,329	7,031,897	4,854,114	13,194,979 ⁶
	Turtle Creek, PA	New Work					
		Approp.	---	---	---	---	26,680,799 ³⁸
		Cost	---	---	---	---	26,680,799 ³⁸
11.	West Virginia & Pennsylvania Flood Control	New Work					
		Approp.	1,454,000	1,801,313	289,000	650,000	6,794,313 ⁴⁷
		Cost	1,346,120	1,595,154	1,420,082	901,230	6,416,451 ⁴⁷

PITTSBURGH, PA, DISTRICT

TABLE 18-A

COST & FINANCIAL STATEMENT

Section in Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sep. 30, 2003
Flood Control – Reservoirs							
12.	Berlin Lake, OH	New Work					
		Approp.					8,739,987 ¹²
		Cost					8,739,987 ¹²
		Maint.					
		Approp.	4,422,000	4,640,968	2,806,238	2,083,000	54,689,311 ¹³
		Cost	4,387,787	4,682,432	2,719,205	2,135,608	54,651,498 ¹³
13.	Conemaugh River Lake, PA	New Work					
		Approp.					46,012,411 ¹⁴
		Cost					46,012,411 ¹⁴
		Maint.					
		Approp.	1,005,000	909,293	1,034,200	988,000	27,983,379 ³⁹
		Cost	1,009,019	907,349	1,018,457	972,753	27,949,737 ³⁹
14.	Crooked Creek Lake, PA	New Work					
		Approp.					4,482,933 ¹⁵
		Cost					4,482,933 ¹⁵
		Maint.					
		Approp.	1,586,000	1,227,749	1,576,733	1,509,000	38,863,101 ¹⁶
		Cost	1,575,244	1,241,922	1,492,454	1,579,249	38,848,205 ¹⁶
15.	East Branch, Clarion River Lake, PA	New Work					
		Approp.					9,539,586 ¹⁷
		Cost					9,539,586 ¹⁷
		Maint.					
		Approp.	1,043,000	809,058	1,082,866	1,164,000	23,540,148 ¹⁸
		Cost	1,029,793	822,686	1,063,336	1,165,359	23,520,451 ¹⁸
16.	Kinzua Dam & Allegheny Reservoir, PA & NY	New Work					
		Approp.					109,305,076 ¹⁹
		Cost					109,305,076 ¹⁹
		Maint.					
		Approp.	1,337,000	1,245,835	1,308,954	1,471,000	36,931,546 ³⁹
		Cost	1,324,820	1,261,543	1,299,938	1,467,316	36,915,837 ³⁹
		Major Rehab.					
		Approp.					2,921,000
		Cost					2,921,000
17.	Lower Girard Dam, OH	New Work					
		Approp.	536,500	688,060	80,000	0	1,939,560 ⁴⁸
		Cost	544,361	747,757	39,502	78,522	1,884,649 ⁴⁸
18.	Loyalhanna Lake, PA	New Work					
		Approp.					5,727,531 ²⁰
		Cost					5,727,531 ²⁰
		Maint.					
		Approp.	1,247,000	964,177	942,153	1,002,000	28,224,883 ²¹
		Cost	1,245,382	961,873	937,561	985,572	28,199,344 ²¹
19.	Mahoning Creek Lake, PA	New Work					
		Approp.					7,144,973 ²²
		Cost					7,144,973 ²³
		Maint.					
		Approp.	971,000	768,907	874,907	818,000	24,729,376 ⁴⁰
		Cost	954,989	783,453	847,040	845,350	24,726,605 ⁴⁰
		Minor Rehab.					
		Approp.					47,033
		Cost					47,033
20.	Michael J. Kirwan Dam & Reservoir, OH	New Work					
		Approp.					17,376,097 ²⁴
		Cost					17,376,097 ²⁴
		Maint.					
		Approp.	753,000	777,779	828,325	748,000	20,298,918 ²⁵
		Cost	751,564	775,590	813,843	757,174	20,289,931 ²⁵

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 18-A **COST & FINANCIAL STATEMENT**

Section in Text	Project	Funding	FY00	FY01	FY02	FY03	Total Cost to Sep. 30, 2003
21.	Mosquito Creek Lake, OH	New Work					
		Approp.	---	---	---	---	4,253,029 ²⁶
		Cost	---	---	---	---	4,253,029 ²⁶
		Maint.					
		Approp.	1,143,000	974,142	1,193,238	1,057,000	22,992,281 ⁴⁵
		Cost	1,135,988	977,429	1,157,153	1,089,449	22,984,017 ⁴⁵
22.	Ohio River Basin, PA (Pittsburgh District)	New Work					
		Approp.	---	---	---	---	985,197 ²⁷
		Cost	---	---	---	---	985,197 ²⁷
23.	Shenango River Lake, PA & OH	New Work					
		Approp.	---	---	---	---	40,217,201 ²⁸
		Cost	---	---	---	---	40,217,201 ²⁸
		Maint.					
		Approp.	2,270,000	2,244,914	2,243,359	2,333,000	53,491,830 ²⁹
		Cost	2,271,569	2,226,516	2,185,615	2,383,195	53,454,772 ²⁹
24.	Stonewall Jackson Lake, WV	New Work					
		Approp.	(70,000)	150,000	0	5,000	211,529,741
		Cost	25,548	73,147	43,120	39,772	211,522,459
		Maint.					
		Approp.	881,000	848,385	871,056	934,000	13,725,584
		Cost	883,275	844,650	867,957	930,896	13,711,877
25.	Tionesta Lake, PA	New Work					
		Approp.	---	---	---	---	7,792,378 ³⁰
		Cost	---	---	---	---	7,792,378 ³¹
		Maint.					
		Approp.	1,506,000	1,353,155	2,405,752	2,309,000	36,435,705 ³²
		Cost	1,495,070	1,358,705	2,326,174	2,351,420	36,386,636 ³²
26.	Union City Dam, PA	New Work					
		Approp.	---	---	---	---	14,559,800
		Cost	---	---	---	---	14,559,800
		Maint.					
		Approp.	198,000	186,445	216,365	214,000	7,404,508
		Cost	195,607	188,472	214,722	215,518	7,403,614
27.	Woodcock Creek Lake, PA	New Work					
		Approp.	---	---	---	---	20,545,065 ³³
		Cost	---	---	---	---	20,545,065 ³⁴
		Maint.					
		Approp.	729,000	681,243	742,333	769,000	18,379,043 ³⁵
		Cost	727,211	680,486	735,362	776,540	18,375,835 ³⁵
28.	Youghiogheny River Lake, PA & MD	New Work					
		Approp.	---	---	---	---	12,521,167 ³⁶
		Cost	---	---	---	---	12,521,167 ³⁶
		Maint.					
		Approp.	3,173,000	1,998,176	1,840,394	1,815,000	48,486,440 ³⁷
		Cost	3,127,000	2,043,075	1,804,618	1,865,773	48,470,820 ³⁷
Environmental							
	Central West Virginia Environmental Infrastructure, WV	New Work					
		Approp.	---	25,000	0	0	25,000
		Cost	---	4,154	1,654	812	6,620
32.	Nanty Glo, PA Environmental Restoration	New Work					
		Approp.	---	67,000	140,000	2,386,337	2,593,337 ⁴⁹
		Cost	---	3,615	150,591	2,246,765	2,400,971 ⁴⁹
	Ohio Environmental Infrastructure, OH	New Work					
		Approp.	---	40,000	310,000	0	350,000
		Cost	---	22,894	288,361	4,733	315,988

PITTSBURGH, PA, DISTRICT

TABLE 18-A

COST & FINANCIAL STATEMENT

Section in Text	Funding	FY00	FY01	FY02	FY03	Total Cost to Sep. 30, 2003
33. South Central, PA	New Work					
Environmental	Approp.	0	8,380,000	1,233,000	5,261,000	51,676,000 ⁴²
Improvement Program	Cost	8,641,623	3,426,574	9,686,132	9,085,540	48,450,038 ⁴²
34. Three Rivers Wet	New Work					
Weather Demo	Approp.	---	---	400,000	71,000	471,000 ⁵⁰
	Cost	---	---	38,667	378,738	417,405 ⁵⁰
35. Formerly Used Sites	New Work					
Remedial Action Program	Approp.	---	185,000	695,000	2,150,000	3,030,000
	Cost	---	132,861	429,041	2,326,626	2,888,528

¹ Includes \$2,453,737 from emergency relief funds and \$1,250,049 from public works funds.

² Includes \$64,365 public works acceleration, executive funds (1963) and \$191,400 provided from the Productive Employment Appropriations Act (PL 98-8) 1983 funds. Also includes \$995,000 appropriated and expended for major maintenance at L&D 2, 3 & 4.

³ Includes amounts appropriated to date for: Point Marion, L&D 8, PA - \$113,013,400 for CG and IWTF, \$3,322,057 for raising crest of dam in 1958-9, \$2,086,438 for original reconstruction years 1923-26 and \$618,758 for AE&D. Grays Landing, L&D 7, PA - \$172,793,200 for CG and IWTF, and \$803,000 for AE&D. L&D 2, 3 & 4 - \$237,481,700 for CG and IWTF.

⁴ Includes amounts expended to date on: Point Marion, L&D 9, PA - \$112,667,403 for CG and IWTF, \$3,322,057 for raising crest of dam in 1958-9, \$2,086,438 for original reconstruction years 1923-6 and \$618,758 for AE&D. Grays Landing, L&D 7, PA - \$172,751,744 for CG and IWTF, and \$803,000 for AE&D. L&D 2, 3 & 4 - \$237,123,612 for CG and IWTF.

⁵ Includes \$22,549 public works acceleration, executive funds (1963), \$742 for maintenance for previous project and \$582,000 provided from the Productive Employment Appropriations Act (PL 98-8) 1983 funds.

⁶ Includes \$22,549 public works acceleration, executive funds (1963), \$742 for maintenance for previous project and \$464,508 provided from the Productive Employment Appropriations Act (PL 98-8) 1983 funds.

⁷ Includes \$1,999,995 emergency relief funds, \$10,000,000 public work funds, \$234,000 Code 711 funds and \$412,088 Code 713 funds, \$462,000 appropriated to and \$218,374 expended on the Dam Safety Assurance Program - CG; excludes \$409,622 contributed by local interest.

⁸ Includes \$89,000 provided from the Productive Employment Appropriations, Act (PL 98-8) 1983 funds. Also includes \$425,000 appropriated to and \$424,493 expended on the Dam Safety Assurance Program O&M.

⁹ Includes \$33,423 from emergency relief funds.

¹⁰ Excludes \$180,485 for new work expended from contributed funds.

¹¹ Includes \$283,988 provided from the Productive Employment Appropriations Act (PL 98-8) 1983 funds.

¹² Includes \$1,542,500 Code 711 funds, \$809,700 Code 712 funds and \$99,111 Code 713 funds; excludes \$100,000 contributed by local interest.

¹³ Includes \$40,000 provided from the Productive Employment Appropriations Act (PL 98-8) 1983 funds. Includes \$7,679 appropriated to and expended from M&O of dams in FY97 and \$703,407 expended to date on M&O of dams.

¹⁴ Includes \$5,351 from emergency relief funds and \$328,000 Code 711 funds.

¹⁵ Includes \$63,788 from emergency relief funds. Also includes \$278,044 Code 711 funds.

¹⁶ Includes \$45,000 provided from the Productive Employment Appropriations Act (PL 98-8) 1983 funds. Includes \$1,918 appropriated to and expended from M&O of dams in FY97 and \$697,646 expended to date on M&O of dams.

¹⁷ Includes \$156,812 Code 711 funds.

¹⁸ Includes \$322,000 provided from the Protective Employment Appropriations Act (PL 98-8) 1983 funds. Also includes \$12,674 appropriated to and \$12,674 expended to date on M&O of dams.

¹⁹ Includes \$2,791 emergency relief funds, \$14,622 Code 711 funds, \$568,265 Code 713 funds; excludes \$389,370 contributed by local interest.

²⁰ Includes \$7,339 from emergency relief funds and \$274,669 Code 711 funds.

²¹ Includes \$256,000 provided from the Protective Employment Appropriations Act (PL 98-8) 1983 funds. Also includes \$104,866 appropriated to and \$104,864 expended to date on M&O of dams.

²² Includes \$25,671 emergency relief funds, \$162,381 Code 711 funds, \$561,247 Code 713 funds; excludes \$500,086 contributed by local interests.

²³ Includes \$25,671 emergency relief funds, \$162,381 Code 711 funds, \$561,247 Code 713 funds; excludes \$456,611 contributed by local interests.

²⁴ Includes \$74,900 Code 711 funds; excludes \$4,585,627.29 for new work contributed by local interest.

²⁵ Includes \$315,500 provided from the Protective Employment Appropriations Act (PL 98-8) 1983 funds. Also includes \$3,174 appropriated to and \$3,713 expended to date on M&O of dams.

²⁶ Includes \$122,729 Code 711 funds and \$94,900 Code 713 funds.

²⁷ Includes \$8,914 from emergency relief funds.

²⁸ Includes \$1,730,100 Code 711 funds and \$1,618,300 Code 713 funds.

²⁹ Includes \$152,000 provided from the Protective Employment Appropriations Act (PL 98-8) 1983 funds. Also includes \$11,896 appropriated to and \$11,891 expended to date on M&O of dams.

³⁰ Includes \$2,303,076 Code 711 funds (\$256,760 provided from the Productive Employment Appropriations Act PL 98-8, 1983 funds), \$275,900 Code 712 funds, and \$24,201 emergency relief funds.

³¹ Includes \$2,303,077 Code 711 funds, (\$256,531 provided from the Productive Employment Appropriations Act PL 98-8, 1983 funds), \$275,900 Code 712 funds, and \$24,201 emergency relief funds.

³² Includes \$203,000 provided from the Protective Employment Appropriations Act (PL 98-8) 1983 funds. Also includes \$9,362 appropriated to and \$9,360 expended to date on M&O of dams.

³³ Includes \$1,671,366 Code 711 funds.

³⁴ Includes \$1,671,366 Code 711 funds.

³⁵ Includes \$85,000 provided from the Productive Employment Appropriations Act (PL 98-8) 1983 funds).

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

³⁶ Includes \$2,846,263 Code 711 funds (\$293,000 provided from the Productive Employment Appropriations Act. (PL 98-8) 1983 funds).

³⁷ Includes \$591,000 provided from the Protective Employment Appropriations Act (PL 98-8) 1983 funds. Also includes \$22,240 appropriated to and \$22,236 expended to date on M&O of Dams.

³⁸ Includes \$1,840,000 (non-federal) original construction cost and an additional \$4,205,000 (non-federal) contributed and \$4,159,759 (non-federal) expended to date.

³⁹ Includes \$701,504 appropriated to and \$701,504 expended to date on M&O of dams.

⁴⁰ Includes \$104,684 appropriated to and \$104,683 expended to date on M&O of dams.

⁴¹ Includes \$4,225,188 (non-federal) contributed and expended to date.

⁴² Includes \$285,000 (non-federal) contributed funds and \$282,914 (non-federal) expended to date.

⁴³ Includes \$4,894,000 appropriated to date for Rehab O&M and \$2,925,000 appropriated to date for Rehab Construction, General. Also includes \$222,000 (non-federal) contributed funds to date.

⁴⁴ Includes \$4,880,202 expended to date for Rehab O&M and \$2,824,695 expended to date for Rehab Construction, General. Also includes \$425 (non-federal) expended to date.

⁴⁵ Includes \$701,504 appropriated to and \$701,504 expended to date on M&O of dams.

⁴⁶ Includes \$3,244,435 (non-federal) contributed funds and \$2,565,808 (non-federal) expended to date.

⁴⁷ Includes \$132,313 (non-federal) contributed funds and \$94,418 (non-federal) expended to date.

⁴⁸ Includes \$480,560 (non-federal) contributed funds and \$440,103 (non-federal) expended to date.

⁴⁹ Includes \$586,337 (non-federal) contributed funds and \$405,606 (non-federal) expended to date.

⁵⁰ Includes \$125,000 (non-federal) contributed funds and \$92,207 (non-federal) expended to date.

PITTSBURGH, PA, DISTRICT

TABLE 18-B

AUTHORIZATION LEGISLATION

Section in Text	Authorizing Act Date	Project and Work Authorized	Documents
1.		Allegheny River, PA	
	Aug 5, 1886	For lock and dam 1. (Fixed dam contemplated. Sep 29, 1891 Secretary of War authorized change to a moveable dam.)	Annual Report, 1886, p. 1545 Annual Report, 1891, p. 2366
	Jun 3, 1896	For locks and dams 2 and 3.	H. Doc. 204, 54 th Cong., 1 st Sess. Annual Report 1896, p. 2212
	Jul 25, 1912	For locks and dam 4 to 8 inclusive.	H. Doc. 540, 62 nd Cong., 2 nd Sess.
	Jul 3, 1930	For a depth of 9' in the lower 61 miles.	H. Doc. 356, 71 st Cong., 2 nd Sess.
	Aug 30, 1935 ¹	Replace lock and dam 1 by a dredged channel, 9' deep and 200' wide up to lock 2, and construct new locks and dams 2 and 3, to replace existing locks and dams 2 and 3.	Rivers and Harbors Committee, Doc. 16, 72 nd Cong., 1 st Sess.
	Aug 30, 1935 ¹	Construct locks and dam 9, raising crest of dam 8, and dredging a navigable channel to head of pool 8.	H. Doc. 721, 71 st Cong., 3 rd Sess. Rivers and Harbors Committee, Doc. 27, 73 rd Cong., 2 nd Sess.
	Jun 26, 1934 ²	Operation and care of locks and dams provided for with funds from War Department appropriation for rivers and harbors.	
3.		Monongahela River, PA & WV	
	Mar 3, 1899	Enlarge and improve lock and dam 6, additional work at lock 3; new repair steamer and new dredge boat with equipment; all at an estimated cost of \$185,556.	Annual Report, 1897, p. 2423
	Jun 13, 1902	Rebuild lock and dam 2 at estimated cost of \$655,961. (Estimate increased in 1910 to \$698,961.)	Annual Report, 1909, p. 1756
	Mar 3, 1905	Acquisition of land and additional improvements at 5 and 6 at a cost of \$7,850.	Annual Report, 1904, p. 460
	Mar 3, 1905	Rebuild lock and dam 3 at estimated cost of \$589,196.	H. Doc. 209, 58 th Cong., 2 nd Sess.
	Mar 2, 1907	Reconstruct lock and dam 5 at estimated cost of \$756,042.	H. Doc. 209, 58 th Cong., 2 nd Sess.
	Mar 4, 1913	Reconstruct lock and dam 6 at estimated cost of \$356,400. (Estimate increased in 1916 to \$418,860.)	H. Doc. 1217, 62 nd Cong., 3 rd Sess.
	Sep 22, 1922	Additional improvements at estimated cost as follow: Guide walls and guard walls, 1 to 6, \$1,255,130; lengthen land chamber of lock 3 to 720', \$787,722; new chamber (360' \$1,161, 24 long), lock 4, \$699,786; lock and dam 7, Lock and dam 8, \$1,165,758; lock and dam 7 second chamber, \$419,126; Lock and dam 8 second chamber, \$504,465; reconstruction dam 4, \$397,211; marine ways, repair plant, office and warehouse, \$250,000 for a total of \$6,640,439.	H. Doc. 288, 67 th Cong., 2 nd Sess.
	Jul 3, 1930	Construct new locks and dam 2.5 miles below existing structure, at estimated cost of \$2,175,000 in lieu of work authorized at old lock and dam 4.	Rivers and Harbors Committee, Doc. 22, 70 th Cong., 2 nd Sess.
	Jan 31, 1931 ³	Chief of Engineers authorized to locate new locks and dam 4 above existing structure and on such site as they may deem most desirable.	
	Jun 26, 1934 ²	Operation and care of locks and dams provided for with funds from War Department appropriations for rivers and harbors.	
	May 17, 1950	Modification of existing project as follows: Provide 2 new locks and dams similar to Morgantown lock and dam to replace existing locks and dams 12 to 15 inclusive. Provide a movable crest on existing dam 8 to raise existing pool full elevation 4'. Provide a navigation channel of 300' minimum bottom width and a 9' project depth above lock and dam 8. Provide an extension of navigable channel of upper Monongahela River, into lower Tygart River for 2.1 miles at a maximum bottom width of 200' and a 9' project depth.	S. Doc. 100, 81 st Cong., 1 st Sess.

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TABLE 18-B

AUTHORIZATION LEGISLATION

Section in Text	Authorizing Act Date	Project and Work Authorized	Documents
	Nov 17, 1986	Construct new lock and dam 7 (Grays Landing Lock and Dam) as follows: The Grays Landing Lock and Dam will be located 3.0 miles downriver from existing Lock and Dam 7. It will consist of a single lock chamber, 84' wide by 720' long, with a fixed crest dam 576' in length. The existing Maxwell Pool at elevation 763.0 will be shortened 3 miles and the existing Pool 7 at elevation 778.0 will be extended downriver to the new dam. There will be no change in pool elevation above existing Dam 7. Upon completion of the new replacement lock and dam, existing Lock and Dam 7 will be removed. Total authorized cost is \$181,000,000.	Supplemental Appropriations Act of 1985 for Engineering and Design and Land Acquisition and Water Resources Development Act of 1986; PL 99-662, Sec. 301(a)
	Nov 17, 1986	Replace existing 56' by 360' lock chamber at Point Marion Lock and Dam (Lock and Dam 8) with new 84' x 720' chamber. Existing movable crest dam to remain; no change in pool elevations. Total authorized cost is \$53,600,000.	Supplemental Appropriations Act of 1985 for Engineering and Design and Land Acquisition and Water Resources Development Act of 1986; PL 99-662, Sec. 301 (a)
	Oct 31, 1992	Navigation improvements as follows: The project replaces the fixed crest dam at Locks and Dam 2 with a gated dam; raises the existing pool 2 by 5', constructs twin 84' x 720' locks at Locks and Dam 4, and eliminates Locks and Dam 3; lowering the existing pool 3 by 3.2'. Authorized cost is \$705,000,000. Cost of construction is to be paid equally from the general fund of the Treasury and the Inland Waterways Trust Fund.	Water Resources Development Act of 1992; PL 102-580, Sec. 101
5.		Tygart Lake, WV	
	Jan 11, 1934	Construction of a dam and reservoir for low water regulation and flood control.	H. Doc. 1792, 64 th Cong., 2 nd Sess.
	Aug 30, 1935		H. Doc 106, 76 th Cong., 1 st Sess.
7.		Elkins, WV	
	Jun 28, 1938	For construction of local flood protection projects.	H. Doc 306, 74 th Cong., 1 st Sess. FCC Doc. 1, 75 th Cong., 1 st Sess.
8.		Johnstown, PA	
	Jun 28, 1938	For construction of local flood protection projects.	H. Doc. 306, 74 th Cong., 1 st Sess. FCC Doc. 1, 75 th Cong., 1 st Sess.
9.		Punxsutawney, PA	
	Jun 28, 1938	For construction of local flood protection projects.	H. Doc. 306, 74 th Cong., 1 st Sess. FCC Doc. 1, 75 th Cong., 1 st Sess.
10.		Saw Mill Run, Pittsburgh, PA	
	Nov 17, 1986	For construction of local flood protection projects.	Water Resources Development Act of 1986
	Oct 12, 1996		Water Resources Development Act of 1996
11.		West Virginia & Pennsylvania Flood Control	
	Oct 12, 1996	For construction of local flood protection projects.	Water Resources Development Act of 1996, PL 102-580, Sec 313
12.		Berlin Lake, OH	
	Jun 28, 1938	Construction of a dam and reservoir for flood control and low water regulation.	H. Doc. 306, 74 th Cong., 1 st Sess.
	Dec 22, 1944 as amended	Construction, operation and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
13.		Conemaugh River Lake, PA	
	Jun 22, 1936 amended by Jun 28, 1938	Construction of a dam and reservoir for flood control.	H. Doc, 306, 74 th Cong., 1 st Sess. FCC Doc. 1, 75 th Cong., 1 st Sess.
	Dec 22, 1944 as amended	Construction, operation and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
14.		Crooked Creek Lake, PA	
	Jun 22, 1936 amended by Jun 28, 1938	Construction of a dam and reservoir for flood control.	H. Doc. 306, 74 th Cong., 1 st Sess. FCC Doc. 1, 75 th Cong., 1 st Sess.

PITTSBURGH, PA, DISTRICT

TABLE 18-B

AUTHORIZATION LEGISLATION

Section in Text	Authorizing Act Date	Project and Work Authorized	Documents
	Dec 22, 1944 as amended	Construction, operation and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
15.		East Branch, Clarion River Lake, PA	
	Jun 28, 1938	Construction of a dam and reservoir for flood control and low water regulation.	H. Doc. 306, 74 th Cong., 1 st Sess.
	Dec 22, 1944 as amended	Construction, operation and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
16.		Kinzua Dam & Allegheny Reservoir, PA & NY	
	Jun 22, 1936 amended by Jun 28, 1938 modified by Aug 18, 1941	Construction of a dam and reservoir for flood control and low Water regulation and recreation.	H. Doc. 306, 74 th Cong., 1 st Sess. FCC Doc. 1, 75 th Cong., 1 st Sess.
		Construction of a dam and reservoir for flood control, pollution Abatement, low water regulation and recreation.	H. Doc. 300, 76 th Cong., 1 st Sess.
17.	Dec 22, 1944	Construction, operation and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
		Lower Girard Dam, OH	
		Design and construction assistance to non-federal interests for repair and rehabilitation of the Lower Girard Dam	Sec 507, WRDA 1996 PL 104-303
18.		Loyalhanna Lake, PA	
	Jun 22, 1936 amended by Jun 28, 1938	Construction of a dam and reservoir for flood control.	H. Doc. 306, 74 th Cong., 1 st Sess. FCC Doc. 1, 75 th Cong., 1 st Sess.
	Dec 22, 1944 as amended	Construction, operation and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
19.		Mahoning Creek Lake, PA	
	Jun 22, 1936 amended by Jun 28, 1938	Construction of a dam and reservoir for flood control.	H. Doc. 306, 74 th Cong., 1 st Sess. FCC Doc. 1, 75 th Cong., 1 st Sess.
	Dec 22, 1944 as amended	Construction, operation and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
20.		Michael J. Kirwan Dam & Reservoir, OH	
	Jul 3, 1958	Construction of a dam and reservoir for flood control, water Supply, low water regulation and recreation.	H. Doc. 191, 85 th Cong., 1 st Sess.
	Jul 14, 1960	To define cost-sharing arrangement for municipal and industrial water supply and water for pollution abatement purposes.	PL 86-645
21.		Mosquito Creek Lake, OH	
	Jun 28, 1938	Construction of a dam and reservoir for flood control and low water regulation.	H. Doc. 306, 74 th Cong., 1 st Sess.
	Dec 22, 1944 as amended	Construction, operation and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
22.		Ohio River Basin (Pittsburgh District)	
	Aug 28, 1937	Construct levees, floodwalls and drainage structures for protection of cities and towns in Ohio River Basin. Projects to be selected by Chief of Engineers with approval of Secretary of War at a cost not to exceed \$24,877,000 for construction.	Flood Control Committee, Doc. 1, 75 th Cong., 1 st Sess.
	Jun 28, 1938	Approved general comprehensive plan for flood control and other purposes in Ohio River Basin as may be advisable at discretion of Secretary of War and Chief of Engineers, and for initiation and partial accomplishment of plan, authorized \$75,000,000 for reservoirs and \$50,300,000 for local flood protection works.	Flood Control Committee, Doc. 1, 75 th Cong., 1 st Sess.
	Aug 18, 1941	Additional \$45 million for prosecution of comprehensive plan for Ohio River Basin.	H. Doc. 300, 76 th Cong., 1 st Sess.
	Dec 22, 1944	Additional \$70 million for further prosecution of comprehensive plan for Ohio River Basin, including additional projects in tributary basins.	H. Doc. 762, 77 th Cong., 2 nd Sess.
	Jul 24, 1946	Additional \$125 million for further prosecution of comprehensive plan including additional projects in tributary basins.	H. Doc. 506, 78 th Cong., 1 st Sess.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 18-B

AUTHORIZATION LEGISLATION

Section in Text	Authorizing Act Date	Project and Work Authorized	Documents
	May 17, 1950	Additional \$100 million for prosecution of comprehensive plan for Ohio River Basin	S. Doc. 20, 81 st Cong., 1 st Sess.
	Dec 30, 1963	Additional \$150 million for further prosecution of comprehensive plan for flood control and other purposes in Ohio River Basin.	PL 88-253, 88 th Cong., 1 st Sess.
	Jun 18, 1965	Additional \$89 million for further prosecution of comprehensive plan for Ohio River Basin.	H. Doc. 6755, 89 th Cong., 1 st Sess.
	May 12, 1967	Additional \$38 million for further prosecution of comprehensive plan for Ohio River Basin.	PL 90-17, 90 th Cong., 1 st Sess.
	Aug 13, 1968	Additional \$35 million for further prosecution of comprehensive plan for Ohio River Basin.	PL 90-483, 90 th Cong., 2 nd Sess.
	Jun 19, 1970	Additional \$69 million for further prosecution of comprehensive plan for Ohio River Basin.	H. Doc. 15166, 91 st Cong., 2 nd Sess.
	Mar 7, 1974	Additional \$120 million for further prosecution of comprehensive plan for Ohio River Basin.	H. Doc. 10203, 93 rd Cong. River Basin Monetary Authorization Act of 1974
	Oct 22, 1976	Authorized Phase I design memorandum stage of advanced engineering and design of the project for abatement of acid mine drainage in the Clarion River Basin, PA.	Water Resources Development Act of 1976; PL 94-587, Sec. 101 (a)
23.		Shenango River Lake, PA & OH	
	Jun 28, 1938	Construction of a dam and reservoir for flood control and low water regulation and recreation.	H. Doc. 306, 74 th Cong., 1 st Sess. FCC Doc. 1, 75 th Cong., 1 st Sess.
	Dec 22, 1944 as amended	Construction, operation and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
24.		Stonewall Jackson Lake, WV	
	Nov 7, 1966	Construction of a dam and reservoir for flood control, water supply, water quality control, area redevelopment and recreation.	S. Doc. 109, 89 th Cong., 2 nd Sess.
25.		Tionesta Lake, PA	
	Jun 22, 1936 amended by Jun 28, 1938	Construction of a dam and reservoir for flood control and low water regulation.	H. Doc. 306, 74 th Cong., 1 st Sess. FCC Doc. 1, 75 th Cong., 1 st Sess.
	Dec 22, 1944 as amended	Construction, operation and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
26.		Union City Dam, PA	
	Oct 23, 1962	Construction of a dam and reservoir for flood control.	S. Doc. 95, 87 th Cong., 2 nd Sess.
27.		Woodcock Creek Lake, PA	
	Oct 23, 1962	Construction of a dam and reservoir for flood control, recreation and storage for water quality control.	S. Doc. 95, 87 th Cong., 2 nd Sess.
28.		Youghiogeny River Lake, PA & MD	
	Jun 28, 1938	Construction of a dam and reservoir for flood control, low-flow Augmentation and pollution abatement purposes.	H. Doc. 306, 74 th Cong., 1 st Sess. FCC Doc. 1, 75 th Cong., 1 st Sess.
	Dec 22, 1944 as amended	Construction, operation and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
33.		South Central, PA Environmental Improvement Program	
	Oct 31, 1992	Construction of local flood protection projects.	Water Resources Development Act of 1992; PL 102-580, Sec 313
34.		Three Rivers Wet Weather Demonstration Project	
	Oct 31, 1992	Environmental infrastructure	Water Resources Development Act Of 1992, PL 102-850, Sec 219
35.		Formerly Used Sites Remedial Action Program (FUSRAP)	
	Jul 5, 2001	Coordination on cleanup and decommissioning of the FUSRAP sites.	PL 107-117, Sec 8143

¹ Included in the Emergency Relief Program, April 8, 1935.

² Permanent Appropriations Repeal Act.

³ Public Res. 117, 71st Cong., 3rd Sess.

PITTSBURGH, PA, DISTRICT

TABLE 18-C

OTHER AUTHORIZED NAVIGATION PROJECTS
(See Section 6 of Text)

Project	Status	For Last Full	Construction	Cost to	
		Report See Annual Report		September 30, 2003	
				Operations and Maintenance	
Allegheny River, PA Open-Channel Work	Completed	1934	197,000		133,940
Buckhannon River, WV ^{1,2}	Completed	1893	5,500		
Cheat River, WV ^{1,2}	Completed	1895	12,997		
Pittsburgh Harbor, PA	Completed	1922	110,663		81,613

¹ Abandonment recommended in H. Doc. 467, 69th Cong., 1st Sess.

² No commerce reported.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 18-E

**OTHER AUTHORIZED FLOOD CONTROL PROJECTS
(All Projects Not Specifically Identified in Text)**

Project and Status	For Last Full Report See Annual Report For	Construction (Federal Cost)	Non-Federal Cost	Cost to September 30, 2003 Operations and Maintenance
Flood Protection				
Specifically Authorized Projects Completed:				
Bradford, PA	1962	7,601,763	1,895,000	
Brookville, PA	1963	964,976	289,000	
Buckhannon, WV	1972	1,568,661	75,000	
Butler, PA	1970	1,556,181	534,000	
DuBois, PA	1979	4,464,607	910,000	
Johnsonburg, PA	1958	674,664	130,000	
Kittanning, PA, Part 1	1949	130,317	2,000	
Latrobe, PA	1951	207,659	44,400	
Latrobe, PA	1970	2,556,652	698,000	
Olean, NY	1954	3,217,531	597,000	
Portage, PA	1965	150,386	14,900	
Portville, NY	1954	2,070,484	353,000	
Reynoldsville, PA	1959	385,494	26,000	
Ridgeway, PA (Elk Creek)	1964	628,888	465,000	
Salamanca, NY	1972	2,880,535	4,180,720	
Turtle Creek, PA	1998	22,500,079	323,000	
Washington, PA	1964	789,093	113,000	
Wellsville, OR Section 1	1965	483,910		
Wellsville, OR Section 11	1956	157,633	152,200	
Youngstown, OH	1976	3,621,134		
Specifically Authorized Projects Deferred:				
Benwood, WV	1954	81,028		
Chartiers Creek, PA	1998	26,592,965		
Authorized by Chief of Engineers Completed:				
Amsterdam, OH	1964	183,072	22,500	
Big Run, PA	1965	364,208	35,900	
Burgettstown, PA		83,129		
Friendsville, MD		41,529	2,200	
Girty's Run, Millvale, PA	1986	2,655,934	701,722	
Grantville, PA	--	75,908	3,000	
Leetonia, OH	--	89,299	17,200	
Oil City, PA	--	43,595		
Oil City Ice Control Structures	1987	3,927,792	25,000	
Root Creek, Bolivar, NY	1986	1,591,436		
Slovan, PA	--	57,811		
Sykesville, PA	--	184,246	9,000	
Tarentum, PA	1964	136,591	24,600	
Tenmile Creek at Marianna, PA	1981	1,554,428		
West Little Pine Creek, Etna, PA	--	2,021,852	86,200	
Wilmore, PA	--	96,853	1,300	
Authorized by Chief of Engineers Active:				
Ridgeway & Vicinity (Clarion River) ²	1979	132,464		
Authorized by Chief of Engineers Inactive:				
Black Fork at Hendricks, WV	1972	6,800		
Oakdale, PA	--	14,127		
Rouseville, PA	--	1,642		
Wallace, WV ¹	--	11,035		
Weston Mills, Olean, NY	--	50,100		
Weston Mills, Portville, NY	--	52,100		
Reservoirs				
Rowlesburg Lake, WV	1977	2,873,799		

¹ Lacks local support.

² No longer economically justified.

PITTSBURGH, PA, DISTRICT

TABLE 18-G

DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report for	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended
Adena, OH (Short Creek)		Aug 5, 1977	13,452	
Allegheny, NY Unit I (Allegheny River) ¹		Nov 17, 1986	4,100	
Allegheny, NY Unit II (Five Mile Creek Area) ¹	1975	Nov 17, 1986	64,851	
Bellaire, OH		May 6, 1981	76,487	
Brackenridge, Tarentum and Natrona, PA ¹		Nov 17, 1986		
Brilliant, OH		Aug 5, 1977		
Brockway, PA (Allegheny River Basin)		Aug 5, 1977	194	
Clarington, OH		Aug 5, 1977		
Coraopolis, PA		Aug 5, 1977		
Dillonvale, OH (Short Creek)		Aug 5, 1977	16,884	
Eagle Creek Reservoir, OH		Jan 1, 1990	100,000	
Empire-Stratton, OH ¹		Nov 17, 1986	33,031	
Follansbee, WV		Aug 5, 1977		
Freeport, PA (Allegheny River)		Aug 5, 1977		
Industry, PA		Aug 5, 1977		
Kittanning, PA, Part 11 (Allegheny River)		Nov 6, 1977		
Lake Chautauqua and Chadakoin River, NY ²	1965	Mar 2, 1970	190,722	
Lake Erie-OW Canal, OH and PA - 1935 Act	1972	May 6, 1981	1,342,000	
Leetsdale, PA		Nov 17, 1986		
Martins Ferry, OH ¹	1941	Nov 17, 1986	25,164	
McKees Rocks, PA		Oct 3, 1978		
Mingo Junction, QH		Aug 5, 1977		
Moundsville, WV ¹		Nov 17, 1986		
Muddy Creek Dam, PA ¹	1977	Nov 17, 1986	402,459	
Neville Island, PA ¹		Nov 17, 1986		
New Cumberland, WV		Aug 5, 1977		
New Kensington and Parnassus, PA ¹		Nov 17, 1986		
Pittsburgh, PA (Golden Triangle)		Oct 3, 1978		
Pittsburgh, PA (North Side)		Oct 3, 1978		
Pittsburgh, PA (The Strip)		Oct 3, 1978		
Powhatan Point, OH ¹		Nov 17, 1986		
Proctor, WV ¹		Nov 17, 1986		
Redbank Creek Lake, PA		Aug 5, 1977	156,377	
Rochester, PA ¹		Nov 17, 1986		
St. Marys, PA (Allegheny River Basin)		Aug 5, 1977	13,529	
Smith Ferry, PA		Aug 5, 1977		
Uniontown, PA	1956	Jan 1, 1990		
Warwood, WV ¹		Nov 17, 1986		
Wellsburg, WV		Aug 5, 1977	6,387	
West Bridgewater, PA		Aug 5, 1977		
Wheeling, WV ¹	1954	Nov 17, 1986	189,067	
Wheeling, WV (North Wheeling) ¹		Nov 17, 1986		
Wheeling, WV (Wheeling Island) ¹		Nov 17, 1986	21,700	
Wilcox, PA ³		Mar 5, 1955	16,761	
Woodlands, WV ¹		Nov 17, 1986		
Youghiogheny River, PA and MD (Canalization) ^{1, 4}	1971	Nov 17, 1986	232,863	

¹ Deauthorized under Water Resource Act of 1986 (PL 99-662).

² Local interests failed to meet requirements of cooperation, authority for project expired Mar 2, 1970.

³ Local interests failed to meet requirements of cooperation, authority for project expired Mar 5, 1955.

⁴ Includes \$47,195 construction costs expended under previous project and \$1,700 O&M costs expended under previous project.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 18-H

ALLEGHENY RIVER, PA, LOCKS AND DAMS
(See Section 1 of Text)

No.	Miles Above Mouth	Nearest Town	Dimensions				Depth on Miter Sills at Normal Pool Level ¹		Character of Foundation		Type of Construction			Percent Complete	Year Open to Nav	Actual Cost
			Chamber Width (feet)	Available Length to Full Width (feet)	Upper Lift at Normal Pool Level (feet)	Normal Pool Elevation (feet, mean sea level)	Lower (feet)	Upper (feet)	Lock	Dam	Kind of Dam	Lock	Dam			
2	6.7	Aspinwall, PA	56	360	11.0	721.0	12.0	10.9	Rock	Rock	Fixed	Concrete	Concrete	100	1934 ²	1,763,485
3	14.5	Cheswick, PA	56	360	13.8	734.8	10.8	11.8	Rock	Pile-Rock	Fixed	Concrete	Concrete	100	1934 ²	1,875,665
4	24.2	Natrona, PA	56	360	10.6	745.4	10.0	8.5	Rock	Rock	Fixed	Concrete	Concrete	100	1927	1,707,690
5	30.4	Freeport, PA	56	360	11.6	757.0	10.5	10.3	Piling	Crib-Pile	Fixed	Concrete	Concrete	100	1927	1,940,537
6	36.3	Clinton, PA	56	360	12.4	769.4	10.6	10.8	Rock	Crib-Pile	Fixed	Concrete	Concrete	100	1928	1,523,959
7	45.7	Kittanning, PA	56	360	13.0	782.4	9.8	10.9	Piling	Steel Sheet Piling	Fixed	Concrete	Concrete	100	1930	1,460,008
8	52.6	Templeton, PA	56	360	17.8	800.2	10.4	13.8	Rock	Rock	Fixed	Concrete	Concrete	100	1931	2,848,920
9	62.2	Rimer, PA	56	360	22.0	822.2	10.5	11.3	Rock	Rock	Fixed	Concrete	Concrete	100	1938	2,510,373
Abandoned lock and dam 1																591,187
Abandoned lock and dam 2																544,929
Abandoned lock and dam 3																310,103
Demolishing old dam 1																26,001
Dredging channel																1,055,003
Total																18,157,860

¹ All depths as shown are on guard sills and are controlling depth.

² Dates shown represent replacement structures.

TABLE 18-I

MONONGAHELA RIVER, PA, LOCKS AND DAMS
(See Section 3 of Text)

(See Section C of Form)																
No.	Miles Above Mouth	Nearest Town	Dimensions				Depth on Miter Sills at Normal Pool Level ¹		Character of Foundation		Type of Construction		Kind Of Dam	Percent Complete	Year Open to Nav	Actual Cost
			Width of Chamber (feet)	Available Length to Full Width (feet)	Upper Lift at Normal Pool Level (feet)	Normal Pool Elevation (feet, mean sea level)	Lower (feet)	Upper (feet)	Lock	Dam	Lock	Dam				
2	11.2	Braddock, PA	56	360	8.7	718.7	16.0	16.0	Rock	Crib-Pile	Fixed	Concrete	Concrete	100	1953 ²	133,091,064 ^{5,7}
3	23.8	Elizabeth, PA	56 ³	360	8.2	726.9	11.6	11.9	Rock	Crib-Pile	Fixed	Concrete	Concrete	100	1907	58,132,804 ^{5,8}
4	41.5	Charleroi, PA	56 ³	360	16.6	743.5	10.7	20.0	Piles	Piles	Gated	Concrete	Concrete	100	1932 ²	86,601,010 ^{5,6}
-	61.2	Maxwell Locks and Dam - Maxwell, PA	84 ³	720	19.5	763.0	15.0	20.5	Rock	Rock	Gated	Concrete	Concrete	100	1964 ²	30,110,889 ⁵

PITTSBURGH, PA, DISTRICT

TABLE 18-I

MONONGAHELA RIVER, PA, LOCKS AND DAMS
(See Section 3 of Text)

No.	Miles Above Mouth	Nearest Town	Dimensions		Upper Lift at Normal Pool Level (feet, mean sea level)	Depth on Miter Sills at Normal Pool Level ¹		Character of Foundation		Kind Of Dam	Type of Construction		Percent Complete	Year Open to Nav	Actual Cost
			Width of Chamber (feet)	Available Length to Full Width (feet)		Lower (feet)	Upper (feet)	Lock	Dam		Lock	Dam			
-	82.2	Grays Landing	84	720	15.0	18.0	26.0	Rock	Rock	Fixed	Concrete	Concrete	100	1994	173,554,744 ⁹
-		Locks and Dam, PA													
-	90.8	Point Marion	84	720	19.0	16.2	16.2	Rock	Rock	Gated	Concrete	Concrete	100	1993 ²	118,694,656 ¹⁰
-		Locks and Dam, PA													
-	102.0	Morgantown	84	600	17.0	14.5	17.8	Rock	Rock	Gated	Concrete	Concrete	100	1950	8,778,000 ⁵
-		Locks and Dam, PA													
-	108.0	Hildebrand Locks and Dam, 6 miles Morgantown, WV	84	600	21.0	15.0	14.0	Rock	Rock	Gated	Concrete	Concrete	100	1959	12,506,829 ⁵
-															
-	115.4	Opekiska Locks	84	600	22.0	14.0	17.8	Rock	Rock	Gated	Concrete	Concrete	100	1964	25,179,622 ⁵
-		And Dam, 13.4 miles Morgantown, WV													
		Marine Ways, etc.													250,000
		Abandoned lock and dam 1													1,019,907 ⁵
		Abandoned lock and dam 4													780,816 ⁵
		Abandoned lock and dam 5													1,074,812 ⁵
		Abandoned lock and dam 6													770,449 ⁵
		Abandoned lock and dam 7													2,853,580 ⁵
		Abandoned lock and dam 8													245,900 ¹⁰
		Abandoned lock and dam 9													191,000 ⁵
		Abandoned lock and dam 10													210,445 ⁵
		Abandoned lock and dam 11													227,668 ⁵
		Abandoned lock and dam 12													200,550 ⁵
		Abandoned lock and dam 13													190,691 ⁵
		Abandoned lock and dam 14													210,127 ⁵
		Abandoned lock and dam 15													175,829 ⁵
		Dredging channel													587,899 ⁵
		Total													655,639,291 ⁵

¹ All depths as shown are on guard sills and controlling depth.

² Dates shown for locks and dams number 2 to 8 inclusive represent reconstruction.

³ 2 chamber.

⁴ Includes \$3,322,057 for raising crest of dam (1958-9), \$2,086,438 for original reconstruction (1923-6), \$618,758 AE&D costs for replacement of lock, and \$112,667,403 for replacement of lock (\$56,215,160 CG funds; \$56,452,243 from Inland Waterways Trust Fund).

⁵ Actual cost may include estimated costs which have been footnoted as necessary.

⁶ Includes \$2,173,767 for original reconstruction (1931-2) and \$15,080,304 for reconstruction of dam (1963-7).

⁷ Includes \$16,967,114 for reconstruction of locks.

⁸ Includes \$15,857,000 for major rehabilitation.

⁹ Includes AE&D costs for proposed lock (\$803,000) as well as \$172,692,644 expended in CG and IWTF.

¹⁰ Includes \$213,776 original project and \$2,639,804 for reconstruction (1925).

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 18-J

**MONONGAHELA RIVER, PA & WV
TOTAL COSTS OF EXISTING PROJECT TO END OF FISCAL YEAR
(See Section 3 of Text)**

Funds	New Work	Operations & Maintenance, General	Total
Regular	\$655,639,291 ^{1,3}	\$366,066,664 ²	\$1,021,705,955 ^{1,2,3}
Maintenance and Operation		452,623	452,623
Public Works Acceleration Exec		22,549	22,549
Total	\$655,639,291^{1,3}	\$366,541,836²	\$1,022,181,127^{1,2,3}

¹ Includes \$5,420,541 for new work for previous projects.

² Includes \$20,446,587 expended between July 7, 1897 and June 30, 1937 on operation and care of works of improvement under revisions of permanent appropriation for such purposes and excludes \$742 for maintenance of previous projects.

³ Includes \$15,857,000 for major rehabilitation of L/D 3.

TABLE 18-K

**OHIO RIVER BASIN (PITTSBURGH DISTRICT)
RESERVOIRS (See Section 22 of Text)**

Tributary Basin and Reservoir	Stream	Total Cost
Allegheny:		
Conemaugh River, PA	Conemaugh River	\$ 46,012,411
Crooked Creek, PA	Crooked Creek	4,482,933
East Branch, Clarion River, PA	Clarion River	9,539,586
Kinzua Dam and Allegheny Reservoir, PA and NY	Allegheny River	112,226,076 ¹
Loyalhanna, PA	Loyalhanna Creek	5,727,531
Mahoning Creek, PA	Mahoning Creek	7,144,973
Tionesta, PA	Tionesta Creek	7,792,378
Union City, PA	French Creek	14,559,800
Woodcock Creek, PA	Woodcock Creek	20,545,065
Beaver:		
Berlin, OH	Mahoning River	8,739,987
Michael J. Kirwan, OH	Mahoning River	17,376,097
Mosquito Creek, OH	Mosquito Creek	4,253,029
Shenango River, PA and OH	Shenango River	40,217,201
Monongahela:		
Stonewall Jackson Lake, WV	West Fork River	211,522,459
Youghiogheny River, PA and MD	Youghiogheny River	12,521,167

¹ Includes \$2,921,000 for dam rehabilitation.

TABLE 18-L

**INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS
(See Section 29 of Text)**

Project	Date of Inspection	Project	Date of Inspection	Project	Date of Inspection
Amsterdam, OH	Apr 2003	Friendsville, MD	May 2002	Portville, NY	Nov 2003
Big Run, PA	Oct 2003	Granville, PA	Apr 2001	Reynoldsville, PA	Oct 2002
Bolivar, NY	Nov 2003	Johnsonburg, PA	Apr 2002	Ridgway, PA	Apr 2003
Bradford, PA	Apr 2003	Kittanning, PA	Apr 1997	Salamanca, NY	Nov 2003
Buckhannon, WV	Oct 2002	Latrobe, PA	Sep 2002	Stonewood-Nutter Fort, WV	Jun 1992
Burgettstown-Slovan, PA	Jun 2002	Leetonia, OH	Jul 2002	Sykesville, PA	Oct 2003
Butler, PA	Apr 2002	Marianna, PA	May 2001	Tarentum, PA	Sep 1997
Charters Creek, PA		Millvale, PA	Mar 2002	Turtle Creek, PA	Apr 2001
Canonsburg-Houston Reach	May 2003	Oil City		Washington, PA	Mar 2001
James G. Fulton Reach	Mar 2001	Ice Control Structure		Wellsville, OH	Jun 2003
Colliers, WV	Sep 1994	Allegheny River, PA	Apr 2001	Weston, WV	Oct 1996
DuBois, PA	Oct 2003	Oil City LPP (dike), PA	Apr 2001	Wilmore, PA	Oct 2002
Eldred, PA	Apr 1987	Olean, NY	Nov 2001	Youngstown, OH	Jun 2000
Etna, PA	May 2003	Portage, PA	Nov 2002		

PITTSBURGH, PA, DISTRICT

TABLE 18-M

FLOOD CONTROL WORK UNDER SPECIAL
AUTHORIZATION (See Section 31 of Text)

Project/Study Identification	Federal Fiscal Year Costs
Emergency Bank Protection - Section 14, 1946 Flood Control Act, PL 79-526	
Allenport, PA	\$44,926
Avonmore (Kiskiminetas River, STP), PA	36,708
Bear Creek, Walnut St., Friendsville, MD	188,734
Blackville, PA, Dunkard Creek	66,059
Center Treatment Plant, Elkhorn Run, PA	8,836
Conway, Crows Run	7,417
Coordination Account	37,865
Ford City, AR, First Street	70,609
Lincoln Borough, PA	58,890
Little Plum Creek, Municipal Building, PA	104,917
McCandless, PA	47,283
Moon Treatment Plant, Elkhorn Run, PA	13,583
New Castle, PA (Neshannock Creek)	33,489
Nickleplate Rd., French Creek, Fairfield	13,222
Pricketts Fort, WV	585
Salamanca, NY	35,477
Shinnston, WV	3,410
Ten Mile Creek, Washington County, PA	6,894
Tygart Lake, WV, Access Road	5,021
West Elizabeth, PA	52,820
Weston, WV	38,785
Total Federal Cost for Current Fiscal Year	\$875,530
Flood Control Activities - Section 205, 1948 Flood Control Act, PL 80-858, as amended	
Coordination Account	\$13,412
Dawson, PA	26,747
Duquesne, Sewage Treatment Plant, PA	37
Follensbee, WV	4,981
Weirton, WV (Harmon Creek)	23,128
West Elizabeth, Mon River, PA	51,453
Total Federal Cost for Current Fiscal Year	\$119,758
Aquatic Ecosystem Restoration - Section 206, 1996 WRDA, PL 104-303, as amended	
Buhl Park Lake, Sharon, PA	\$106,007
Coordination Account	19,522
East Palestine, OH	31,766
Falls Run/Wheeling Creek, Belmont, OH	167,460
Lick Run, WV	117,823
Lorraine Pile, PA	504
Nine Mile Run, Allegheny County, PA	61,295
North Fork Yellow Creek, OH	1,076
North Park Lake, PA	386,298
Pringle Run, WV	420
Saxman Run	176,461
Total Federal Cost for Current Fiscal Year	\$1,068,632
Modifications for Improvement of the Environment – Section 1135, 1986 WRDA, PL 99-662, as amended	
Bone Run, Kinzua	\$76,544
Coordination Account	9,420
Preliminary Restoration Plan	1,136
Shenango River Lake, PA (Shorebird Habitat)	532
Tygart Lake, WV (Scab Run)	21,429
Tygart River Lake (Pleasant Creek Wetland)	(169)
Total Cost for Current Fiscal Year	\$108,892
Flood Control and Coastal Emergencies - PL 99, 84th Congress and antecedent legislation	
Disaster Preparedness	\$270,673
Emergency Operations	25,416
Rehabilitation	88,354
Total Federal Cost for Current Fiscal Year	\$384,443

OHIO RIVER

For actual construction of locks and dams, and operation and care of completed structures, the Ohio River is divided into three sections under immediate supervision and direction of District Engineers at Pittsburgh, Huntington, and Louisville. Pittsburgh section extends 127 miles from head of river at Pittsburgh, PA, to a point immediately upstream from New Martinsville, WV, and includes Emsworth, Dashields, Montgomery, New Cumberland, Pike Island, and Hannibal Locks and Dams. Huntington section

extends 311 miles from mile 127 to 438 immediately upstream from Foster, KY, and includes Willow Island, Belleville, Racine, Robert C. Byrd, Greenup, and Captain Anthony Meldahl Locks and Dams. Louisville section extends 543 miles from mile 438 to mouth of river, and includes Markland and McAlpine Locks and Dams (with Louisville and Portland Canal), Cannelton, Newburgh, John T. Myers, and Smithland Locks and Dams, and Locks and Dams 52 and 53.

Improvements

Navigation

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Navigation

1.CONSTRUCTION OF LOCKS AND DAMS ON OHIO RIVER

Location. Ohio River is formed by junction of Allegheny and Monongahela Rivers at Pittsburgh, PA, and flows generally southwesterly for 981 miles to join Mississippi River near Cairo, IL. For description of river see page 1227, 1932 Annual Report.

Previous Projects. For details see page 1907 of Annual Report for 1915.

Existing project. Provides for improvement of entire river by construction of locks and dams to provide channel depth of 9 feet and for widening Louisville and Portland Canal at Louisville, KY. Project provides for two locks (110 feet by 600 feet and 56 feet by 360 feet) at Emsworth, Dashields and Montgomery. The dams at Emsworth and Montgomery are movable crests while at Dashields it is a fixed crest. Below Montgomery Locks and Dam, the existing project consists of fixed dams with movable crests with two locks (110 by 1,200 feet and

110 by 600 feet) at New Cumberland, Pike Island, Hannibal, Willow Island, Belleville, Racine, Robert C. Byrd, Greenup, Captain Anthony Meldahl, Markland, Cannelton, Newburgh, and John T. Myers; two locks 110 by 1,200 feet at Smithland; 110- by 1,200-foot temporary locks in addition to the existing locks at Locks and Dams 52 and 53, and reconstruction to provide a 110- by 1,200-foot lock in addition to existing locks and a fixed dam with two sections of movable crest at McAlpine Locks and Dam; widening Louisville and Portland Canal to 500 feet. Auxiliary lock 56 by 360 feet at McAlpine Locks and Dam has been inoperative since failure of downstream lock gates in December 1972. Rehabilitation of existing Locks and Dams 52 and 53 was started in September 1979 under the purview of Section 6, March 1909 Act. Mound City was also considered authorized under purview of 1909 Act, and preconstruction planning was performed in the period 1965 to 1972. The ruling of the U.S. District Court, District of Columbia, on September 6, 1974, with reference to Lock and Dam 26, Mississippi River, would also apply to this project. Consequently, it is no longer considered authorized. Operation and care of locks and

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dams were included in project July 1, 1935, under provisions of Permanent Appropriations Repeal Act of June 26, 1934. Estimated Federal cost of new work, is \$3,600,490,636. Foregoing estimate does not include expenditures on previous projects. Various items previously included in this project are considered inactive or unnecessary and are excluded from foregoing cost estimate. See page 693, Annual Report, 1968, for items and estimated cost. Under authority of 1910 River and Harbor Act, Louisville and Portland Canal was widened to 200 feet; Locks and Dams 40 and 42 eliminated; Locks and Dams 1 and 2 replaced by Emsworth Locks and Dam; Lock and Dam 3 replaced by Dashields Locks and Dam; and Locks and Dams 4, 5, and 6 replaced by Montgomery Locks and Dam. Locks and Dams 24, 25, and 26 were replaced by Robert C. Byrd Locks and Dam authorized by August 30, 1935, Act, and constructed under project for improving lower Kanawha River. Locks and Dams 7, 8, and 9 were replaced by New Cumberland Locks and Dam; Locks and Dams 10 and 11 were replaced by Pike Island Locks and Dam; Locks and Dams 12, 13, and 14 were replaced by Hannibal Locks and Dam; Locks and Dams 15, 16, and 17 were replaced by Willow Island Locks and Dam; Locks and Dams 18, 19, and 20 were replaced by Belleville Locks and Dam; Locks and Dams 21, 22, and 23 were replaced by Racine Locks and Dam; Locks and Dams 27, 28, 29, and 30 were replaced by Greenup Locks and Dam; Locks and Dams 31, 32, 33, and 34 were replaced by Captain Anthony Meldahl Locks and Dam; Locks and Dams 35, 36, 37, 38, and 39 were replaced by Markland Locks and Dam; the Louisville and Portland Canal at McAlpine Locks and Dam was widened to 500 feet. Locks and Dams 43, 44, and 45 were replaced by Cannelton Locks and Dam; Locks and Dams 46 and 47 were replaced by Newburgh Locks and Dam; Locks and Dams 48 and 49 were replaced by John T. Myers Locks and Dam, and Locks and Dams 50 and 51 were replaced by Smithland Locks and Dam, as modifications to existing project under purview of Section 6, March 3, 1909 Act, reducing total number of structures to 20. The Water Resources Development Act of 1974 combined the Newburgh Bank Protection Works project with the Newburgh Locks and Dam project. A December 1981 Act established the Falls of the Ohio National Wildlife Conservation Area near McAlpine Locks and Dam to protect and preserve existing fossilized coral and a diversity of wildlife. A November 17, 1988 Act authorized a replacement structure for Locks & Dams 52 & 53 at Olmsted, IL. A November 28, 1990 Act authorized an interpretive center at the Falls of the Ohio National Wildlife Conservation Area near McAlpine Locks & Dam and a replacement of the existing 110 foot x 600 foot lock at McAlpine Locks & Dam, IN & KY. Table 19-J contains data relative to various features of locks and dams included in existing

project. For list of principal towns and cities along Ohio River with their mileage below Pittsburgh, PA, see page 1060, 1962 Annual Report. See Table 19-I for licenses.

Navigation system of 20 locks and dams is in operation and 9-foot navigation throughout length of river is generally available at all times. At certain unstable bars project depth is maintained by dredging, supplemented by contraction works. (See "Open Channel Work, Ohio River.") Table 19-J shows cost and year completion of locks and dams now in operation. New Cumberland, Pike Island, Hannibal, Willow Island, Belleville, Racine, Greenup, Captain Anthony Meldahl, Markland, McAlpine, Cannelton, Newburgh, John T. Myers, and Smithland replacement locks and dams are in operation, replacing 39 old low-lift locks and dams. For total cost of existing project, see Table 19-H.

Terminal facilities. Modern public terminals, with warehouses, equipped with operating machinery for transferring materials, have been constructed by private interests at some of the larger cities and towns. A list of terminals on Ohio River is revised annually and can be obtained from Division Engineer, U.S. Army Engineer Division, Great Lakes & Ohio River, Cincinnati, Ohio.

Operations during fiscal year. New work by contract and hired labor:

Greenup Locks and Dam: WRDA 2000 authorized improvements to Greenup L&D, KY. A Preconstruction Engineering and Design study is underway consisting of preparation of plans and specifications for a mooring facility, geotechnical investigations, design report for the lock extension, mitigation model studies, and archaeological, historical, cultural, and biological work. Studies are scheduled for completion in 2005.

Robert C. Byrd Locks and Dam: The existing project, constructed under project for improving lower Kanawha River, was placed in operation in August 1937. The dimensions of the existing locks chambers and poor approach conditions, particularly to downstream traffic, have created a higher than normal accident rate to the structure with corresponding hazards and delays to traffic. The Water Resources Development Act of 1976 authorized Phase I studies for 1,200-foot locks in a bypass canal. These studies are complete.

Initial Construction, General funds for the continuation of Engineering activities were received in September 1985. Real estate acquisition is complete. The contract for the Locks was awarded in October 1987 and is complete. The contract for the Dam Rehabilitation was awarded in June 1993 and is 98 percent complete. The total estimated cost of the project is \$381.0 million, which is 50 percent federal cost and 50 percent Inland Waterways Trust Fund cost.

OHIO RIVER

Falls of the Ohio National Wildlife Conversation Area Was authorized by 97-137 on December 29, 1981 and modified by Public Law 101-640 on November 28, 1990 to design and construct an interpretive center. The Conservation Area protects 1,000 acres, which consists of birdlife and other wildlife. Planning consisted of efforts to define facilities to be cost shared with local interests. All Real Estate tracts have been acquired and one tract remains in a condemnation trial. A construction contract to construct the cost-shared recreation facilities was awarded on 30 September 1993, and completed in February 1995. The Indiana Department of Natural Resources manages the area under a Public Park and Recreation Lease granted on 1 Jan 1992.

John T. Myers Locks and Dam: Construction was initiated in June 1965. All work is complete. An extension of the existing 600-foot x 110-foot auxiliary lock chamber to a 1,200-foot x 110-foot chamber was authorized by the WRDA of 2000 in Public Law 106-541 on 11 December 2000. This effort will give the J.T. Myers project twin 1,200-foot locks for inland navigation tow traffic. A Preconstruction and Design study is underway consisting of the preparation of geotechnical investigations, design reports for the lock extension and aquatic mitigation, hydraulic model studies, and economic and archeological, historical, cultural and biological work. Studies are scheduled for completion in 2004.

McAlpine Locks and Dam: A replacement of the existing 110 foot x 600 foot lock with a new 100 foot x 1,200 foot lock was authorized by WRDA of 1990 in Public Law 101-640. Construction has been initiated. A contract to construct a cofferdam and demolish the 360 foot and 600 foot locks was awarded in May 2000 and was completed March 2003. A contract to construct a boat mooring facility was awarded 4 April 2002 for \$2,680,000 and is 90% complete. A contract to construct the new 1,200 foot lock and an access bridge to Shippingport Island was awarded 24 Sep 2002 for \$221,441,468. Notice to proceed was issued 30 Oct 2002. \$133,658,000 has been allocated for the lock replacement and ancillary efforts.

Olmsted Locks & Dam: A replacement structure for Locks and Dams 52 & 53 was authorized by the WRDA of 1988 in Public Law 100-676 on 17 November 1988. Planning Engineering and Design continued. A contract to construct the approach wall was awarded 26 August 1999 for \$98,980,610 and advanced to 94 percent completion. A contract to relocate the Village of Olmsted's Boat Ramp was awarded June 4, 2001, for \$1,358,242 and was turned over to the user in October 2002. A contract for the Operating and Maintenance Bulkheads was awarded on September 27, 2001, for

\$24,156,000 and advanced to 70% complete. The design-build contract for the Gate Storage contract was awarded 8 March 2002 and advanced to 59% complete. The Mooring Cells were awarded 4 June 2002 and advanced to 95% complete. In April 2003 a contract was awarded to upgrade pump #1 at the Ballard Wildlife Management Area. The Dam P&S were completed in FY03 and the advertisement for construction began. In FY03, \$29,967,500 was expended on the Olmsted project.

Emsworth Locks and Dam: FY03 effort included starting repairs on filling valves for the land chamber by hired labor, cost \$1,238,210.

Montgomery Locks and Dam: In FY03 a security fence was installed, contract cost of \$133,646.

New Cumberland Locks and Dam: In FY03 hired labor efforts included dewatering the river chamber and installing miter gates, cost \$2,763,409.

Pike Island Locks and Dam: FY03 efforts included renovation of the river wall emptying valve by hired labor, cost \$955,027.

Hannibal Locks and Dam: Hired labor efforts in FY03 replaced the middle wall filling valve, cost \$860,649.

Dashields Locks and Dam: FY03 efforts included replacement of land wall filling and emptying valves at a hired labor cost of \$952,754. A security fence was installed at a contract cost of \$94,258.

Operation and maintenance, general. Locks and dams operated as required and necessary repairs and improvements made thereto and to operator's quarters, grounds and esplanades. Costs were \$17,528,037 for Huntington District, \$30,807,991 for Louisville District and \$20,398,457 for Pittsburgh District.

2. OPEN CHANNEL WORK, OHIO RIVER

Location. Under jurisdiction of district engineer in whose district work is located. Portion of river included in project extends 974.7 miles from head of river at Pittsburgh, PA, to mouth of Cache River (Mound City, IL). Open channel improvement from mouth of Cache River to mouth of Ohio River is under jurisdiction of Mississippi River Commission.

Existing Projects. Before completion of canalization project, no project depth had been fixed by Congress under project for open channel work; but, in order to properly aid packet and barge navigation, it was necessary to secure a low-water channel with a minimum depth of 4 to 6 feet, and a width, depending upon

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difficulty of running channel, of 400-600 feet; also, to permit movement of large coal tows, which movement occurred at stages of water exceeding 10 feet, it was necessary to remove points of projecting bars which formed at various locations along river. Accomplishment of this purpose involved concentration of current by closing back channels at islands with low dams, contraction and straightening wide open channels by low dikes, dredging bars and shoals, and removal of snags and wrecks. Incidental to direct improvement of Ohio River is construction and maintenance of ice piers as required for protection of river craft. Stage of extreme high water on Ohio River varies from 46 feet at Pittsburgh, PA, to 80 feet at Cincinnati, OH, with 57.2 feet at Louisville, KY (head of falls, 53.8 feet at Evansville, IN, and 59.5 feet at Cairo, IL (mouth of river). Estimated cost of new work is \$16.16 million, exclusive of following items which are considered inactive: Ice piers authorized by 1927 River and Harbor Act; reforestation of sloughs of Kentucky Peninsula near Evansville, IN, authorized by 1930 River and Harbor Act; dredging to widen channel at certain points; and placing revetment at various points. Estimated cost of these items is \$6,565,000. Operation of snag boats on Ohio River below Pennsylvania State line was included in project July 1, 1935, under provisions of Permanent Appropriations Repeal Act of June 26, 1934. See Table 19-B for authorizing legislation.

New work under this project is substantially complete, since it is not anticipated that work on inactive portion of project will be accomplished. In addition to dredging, local stabilization of channel has been effected at various points by construction of dikes and revetment. Work, which remains, consists of dredging to widen channels at certain points to project depth.

Local cooperation. River and Harbor Act of January 21, 1927, authorizing construction of ice piers for general open channel work, imposes condition that before work is begun on any pier, local interests convey to the United States free of cost such riparian rights as may be deemed necessary in connection with the improvements at locality (H. Doc. 187, 67th Congr., 2nd Sess.). Existing ice piers are adequate for present purposes and local cooperation is not needed since no additional construction is under consideration. River and Harbor Act of July 3, 1930, provides for reforestation of sloughs of Kentucky Peninsula and bank protection and that no expense shall be incurred by the United States for acquiring lands required for purpose of this improvement (H. Doc. 409, 69th Congr., 1st Sess.). However, since no serious overbank erosion has occurred since bank revetment in 1933-34, reforestation is not considered justifiable at this time and no local cooperation is required.

Operations during fiscal year. Operation and maintenance, general: Dredging was done where required to provide an adequate and dependable channel of project depth at minimum pool conditions. Dikes and revetments were maintained and routine work of maintaining navigation aids, removing snags, making channel studies, hydrographic surveys and mapping was performed as required. Channel soundings, hydrographic surveys, steam gauging operations, channel inspections and aids to navigation, and miscellaneous inspections and reports cost \$2,313,495. In FY 2003 dredging by contract in the Huntington District was 258,145 cubic yards at \$1,205,235, Louisville District 697,526 cubic yards at \$2,267,679, and Pittsburgh District 18,000 cubic yards at \$251,915.

OHIO RIVER

**TABLE
19-A****COST AND FINANCIAL STATEMENT**

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to Sep 30, 2003	(footnotes)
1.	Construction of Locks & Dams on OH River	New Work						
		Approp.	\$103,603,000	\$87,527,000	\$80,991,000	\$57,341,500	\$2,468,067,261	1 3 5 10 17 21
		Cost	104,909,063	87,242,902	80,736,124	58,015,792	2,467,742,907	1 3 6 11 12 15 16 18 22 23
		Maint.						
		Approp.	71,813,499	70,560,691	79,741,066	81,693,494	1,471,079,299	2 4 19
		Cost	71,541,494	70,809,500	73,159,376	68,733,288	1,451,202,973	2 13 14 19 20
		Rehab.						
		Approp.	0	0	0	0	82,972,138	
		Cost	0	0	0	0	82,972,138	
		Rehab.(O&M)						
		Approp.	0	0	0	0	33,914,252	
		Cost	0	0	0	0	33,914,252	
2.	Open Channel Work, Ohio River	New Work						
		Approp.	-	-	-	-	15,962,260	8
		Cost	-	-	-	-	15,962,260	8
		Maint.						
		Approp.	6,861,375	5,395,023	4,571,723	6,227,494	196,602,234	7 9
		Cost	6,837,404	5,148,194	4,835,993	5,899,144	195,953,913	7 9
		Rehab.						
		Approp.	-	-	-	-	944,649	
		Cost	-	-	-	-	944,649	

- 1 Includes \$17,003,761 for previous 6-foot canalization project.
- 2 Includes \$36,943,217 expended from 1885 to 1937 on operation and care of work of improvement under provisions of permanent indefinite appropriations for such purposes.
- 3 Includes \$215,812 public works acceleration, executive 1963.
- 4 Includes \$38,766 public works acceleration, executive 1963.
- 5 Excludes \$251,769 contributed funds for new work.
- 6 Excludes \$250,102 contributed funds for new work.
- 7 Excludes \$1,621,349 expended in operation of snag boats under provisions of permanent indefinite appropriation for such purposes, and \$267 transferred to project without reimbursement.
- 8 Includes \$1,040,236 Public Works funds.
- 9 Includes \$1,000 for removal of obstructions in Licking River under authority of Section 3, R&H Act of 1930.
- 10 Includes \$100,000 placed in FY 1971 Budget Reserve.
- 11 Excludes \$3,899 transferred from project without reimbursement.
- 12 Surplus property valued at \$3,553 transferred to project without reimbursement.

- 13 Excludes \$2,140 transferred to project without reimbursement.
- 14 Excludes surplus property valued at \$73,832 transferred to project without reimbursement.
- 15 Includes \$87,724,158 prior construction cost.
- 16 Excludes surplus property valued at \$297,385 transferred to project without reimbursement.
- 17 Includes \$549,392 Code 710 Funds, \$572,162 Code 711 Funds, \$532,677 Code 712 Funds and \$1,759,812 Code 713 Funds.
- 18 Includes \$549,392 Code 710 Funds, \$342,162 Code 711 Funds, \$532,677 Code 712 Funds and \$1,989,812 Code 713 Funds.
- 19 Includes \$2,158,073 Funds provided from The Productive Employment Appropriations Act of 1983 (PL 98-8).
- 20 Includes \$920,945 cost for operations & care of previous projects.
- 21 Includes \$ 542,561,750 Inland Waterways Trust Funds.
- 22 Includes \$ 542,414,927 Inland Waterways Trust Funds.
- 23 Excludes \$9,525,437 settlement from the U S Treasury Dept. Judgment Fund.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

Table 19-B		Authorizing Legislation	
See Section in Text	Date of Authorizing Act	Project and Work Authorized	Documents
2.		Open Channel Work, Ohio River	
March 3, 1827		Project adopted by this act originally covered entire length of Ohio River from its mouth near Cairo to Pittsburgh, a distance of 981 miles. It provided for removal of all obstructions, which tend to endanger steamboat navigation.	
January 21, 1927		Construct ice piers as a part of allotted from appropriations for general open channel work.	H. Doc. 187, 67th Cong., 2 nd Sess.
July 3, 1930		Reforestation of sloughs on Kentucky Peninsula near Evansville, IN, and a 200-foot strip along bank and for bank protection at an estimated cost of \$200,000.	H. Doc. 409, 69th Cong., 1 st Sess.
July 3, 1958		Act of March 3, 1827, modified to include maintenance of existing Licking River Channel within lower 3-mile limit of river slack water, at an estimated increase of \$1,000 in cost of average annual maintenance.	H. Doc. 434, 84th Cong., 2 nd Sess.
		Locks and Dams, Ohio River	
December 29, 1981		Act of December 29, 1981, established the 1,000-acre Falls of the Ohio National Wildlife Conservation Area, at a cost not to exceed \$300,000.	H.R. 2241, PL97-137, Title II, 95 Stat. 1710
November 17, 1988		Act of November 17, 1988 authorized a replacement structure for Locks and Dams 52 and 53 at Olmsted, Illinois.	PL 100-676, 100th Cong., 2nd Sess.
November 28, 1990		Act of November 28, 1990, modified PL 97-137 by authorizing an interpretive center at Falls of the Ohio National Wildlife Conservation Area, at an estimated total cost of \$3,200,000.	PL 101-640, 101st Cong., 2nd Sess.
November 28, 1990		Act of November 28, 1990 authorized a modernization of the existing 110 foot x 600 foot lock at McAlpine Locks and Dam, Indiana and Kentucky at a total cost of \$219,600,000 with one-half appropriated from the Treasury and one-half from the Inland Waterways Trust Fund.	PL 101-640, 101st Cong., 2nd Sess.
October 31, 1992		Act of October 31, 1992 renamed the Gallipolis Locks and Dam to the Robert C. Byrd Locks and Dam.	PL 102-580, 102nd Cong., 2nd Sess.
October 1, 1996		Act of October 1, 1996 renamed the Uniontown Locks and Dam to the John T. Myers Locks and Dam.	PL 104-303, 104 th Cong.
October 31, 2000		Act of October 31, 2000 authorized a modernization of the existing 110' x 600' lock at John T. Myers Locks and Dam, Indiana and Kentucky at a total cost of \$181,700,000 with one-half appropriated from the Treasury and one-half from the Inland Waterways Trust Fund.	PL 106-541, 106 th Cong.
October 31, 2000		Act of October 31, 2000 authorized a modernization of the existing 110' x 600' lock at Greenup Locks and Dam, Kentucky and Ohio, at a total cost of \$175,500,000 with one-half appropriated from the Treasury and one-half from the Inland Waterway Trust Fund.	PL 106-541, 106 th Cong.
October 31, 2000		Act of October 31, 2000 authorized projects for ecosystem restoration on Ohio River Mainstem, Kentucky, Illinois, Indiana, Ohio, West Virginia and Pennsylvania at a total cost of \$307,700,000 with an estimated Federal cost of \$200,000,000 and an estimated non-Federal cost of \$107,700,000.	PL 106-541, 106 th Cong.

OHIO RIVER

Table 19-H Construction of Locks and Dams on Ohio River
Total Cost of Existing Project to September 30, 2003
(See Section 1 of Text)

Funds	Operations and Maintenance			Total
	New Work	General	Rehabilitation	
Regular	\$2,375,345,732	\$1,410,241,256	\$116,886,390	\$3,902,473,378
Public Works	3,258,368	0	0	3,258,368
Emergency Relief	1,198,837	19,000	0	1,217,837
Maintenance & Operation	0	3,039,789	0	3,039,789
Public Works Acceleration	215,812	38,766	0	354,578
Executive 1963	0	0	0	0
Total	\$2,380,018,749 ³	\$1,413,338,811 ^{1 2}	\$116,886,390 ⁴	\$3,910,243,950

¹Excludes \$36,943,217 expended from 1885 to 1937 under permanent indefinite appropriation.

²Excludes \$920,945 cost for operation and care of previous projects.

³Excludes \$87,724,158 prior construction cost.

⁴Includes \$33,914,252 cost for O & M Rehabilitation.

Note: All other cost variations are listed in the Footnotes of Table 19-A.

Table 19-I Federal Energy Regulatory Commission Licenses
At Locks and Dams, Ohio River

	Markland Dam	McAlpine Dam	Racine Dam	Greenup Dam	Hannibal Dam
F.E.R.C License	2,211	289:1,000	2,570	2,614	3,206
License	Public Service Co. of Indiana	Louisville Gas and Electric Co.	Ohio Power Co.	City of Vanceburg, Kentucky	City of New Martinsville, WV
Annual Charge	\$ 45,950	\$ 95,000	\$ 64,232	\$ 261,103	0
Collections to end of Fiscal Year 2003	\$1,698,216.64	\$9,670,353.94	\$2,228,846	\$5,195,883	\$197,589.03

Ohio River Locks and Dams (See Section 1 of Text)

[illegible]

Table 19-J
(continued)

Ohio River Locks and Dams
(See Section 1 of Text)

Lock And Dam	Miles Below Pittsburgh	Distance from Nearest Town	Width of Chamber (feet)	Greatest Length Available for Full Width (feet)	Lift (feet)	Upper Normal Pool Elevation	Depth on Miter Sills		Character of Foundation		Percent Complete	Year Opened to Navigation	Actual Cost to Date of Each Lock and Dam
							Upper (feet)	Lower (feet)	Lock	Dam			
(feet, mean sea level)													
16	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,275,532
	161.7	Willow Island Locks and Dam, 2.7 miles above Waverly, WV	110	1,200 600	20.0	602.0	35.0	15.0	Rock and Piles	Rock	100	1972	78,173,881
17	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,362,591
18	-	Replaced	-	-	-	-	-	-	-	-	-	-	927,091
19	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,213,848
20	-	Replaced	-	-	-	-	-	-	-	-	-	-	936,696
	103.9	Belleville Locks and Dam, 0.3 mile below Reedsville, OH	110	1,200 600	22.0	582.0	37.0	15.0 ³	Rock and Piles	Rock	100	1968	62,591,255
21	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,484,562
22	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,218,798
23	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,851,488
	237.5	Racine Locks and Dam, 1.5 miles below Letart Falls, OH	110	1,200 600	22.0	560.0	18.0	15.0	Rock and Piles	Rock	100	1971	64,922,680
24	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,187,542
25	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,925,205
26	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,307,241
	279.2	Robert C. Byrd Locks and Dam, 0.7 mile below 6 Hogsett, WV	-	-	-	-	-	-	-	-	-	-	-
		Robert C. Byrd Modernization	110	1,200	-	-	-	-	-	-	-	-	3,452,066
27	Rehab	Dam and New Lock	110	1,200	23.0	538.0	18.0	15.0	Rock	Rock	100	1992	366,639,499 ¹⁶
27	-	Replaced	110	600	-	-	-	-	-	-	-	-	-
28	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,063,133
29	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,088,802
30	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,579,618
	341.0	Greenup Locks and Dam, 4.9 miles below Greenup, KY	110	1,200 600	30.0	515.0	18.0 ¹	13.0	Rock	Rock	100	1959	57,464,191
31	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,359,231
32	-	Replaced	-	-	-	-	-	-	-	-	-	-	2,951,216
33	-	Replaced	-	-	-	-	-	-	-	-	-	-	1,937,166

OHIO RIVER

Ohio River Locks and Dams

(See Section 1 of Text)

[illegible]

Table 19-J Ohio River Locks and Dams													
(continued) (See Section 1 of Text)													
Lock And Dam	Miles Below Pittsburgh	Distance from Nearest Town	Width of Chamber (feet)	Greatest Length Available for Full Width (feet)	Lift (feet)	Upper Normal Pool Elevation	Depth on Miter Sills		Character of Foundation		Percent Complete	Year Opened to Navigation	Actual Cost to Date of Each Lock and Dam
							Upper (feet)	Lower (feet)	Lock	Dam			
(feet, mean sea level)													
49	-	Replaced	-	-	-	-	-	-	-	-	-	-	3,325,964
	846.0	John T. Myers Locks and Dam, 3.5 miles below Uniontown, KY	110	1,200									
			110	600	22.0	342.0	34.0	12.0	Rock	Rock	99	1975	102,190,120
50	-	Replaced	-	-	-	-	-	-	-	-	-	-	3,571,762
51	-	Replaced	-	-	-	-	-	-	-	-	-	-	4,370,566
	918.5	Smithland Locks and Dam, 2 miles above Smithland, KY	110	1,200									
			110	1,200	22.0	324.0	34.0	12.0	Rock	Rock	99	1980	273,725,470
52	938.9	1.4 miles below Brookport, IL	110	600	12.0	302.0	15.4	11.0	Pile	Pile	100	1928	13,337,747 ¹⁰
	938.9	1.4 miles below Brookport, IL (New lock) Dam at Olmsted, IL	110	1,200	12.0	302.0	15.4	11.0	Pile	Pile	100	1969	10,197,516
53	962.6	10.8 miles above Mound City, IL	110	600	13.4	290.0	15.4	9.6 ⁸	Pile	Pile	100	1929	10,004,240 ¹¹
	962.6	10.8 miles above Mound City, IL (New lock)	110	1,200	13.4	290.0	15.4	9.6	Pile	-	100	1982	38,570,920
	964.4	Olmsted Locks & Mound City Lock and Dam, 1 mile below Mound City, IL	110	1,200	21.0	300.0	18.0	18.0	Pile	Pile	52	2008	600,120,806 ¹⁷
	974.2		-	-	-	-	-	-	-	-	-	-	1,539,470 ¹²
TOTAL													\$2,577,615,892 ¹⁹

Table 19-J Ohio River Locks and Dams
(Continued)

Footnotes

- ¹ Depths are on emergency dam foundation and re-controlling depths.
² Change from fixed dam to lift-gate dam completed in 1938.
³ Depths are on poiree dam foundation and are controlling depths.
⁴ Land chamber.
⁵ River chamber.
⁶ Lock and Dam 41 completed with 110- by 600-foot lock in 1921. Completed with new dam and raised canal and lock wall in 1928. Auxiliary 56- by 360-foot lock constructed in 1929-30. Reconstruction and modernization began 1956, renamed McAlpine Locks and Dam in 1960. Operation of auxiliary lock suspended in 1971.
⁷ Existing structures are complete except for deferred alteration of railroad bridge. Construction of the new 110 foot x 1,200 foot lock began in September 2002.
⁸ Dam below not yet constructed. Depth on lower miter sill at lower water.
⁹ Excludes \$2,219,975 payment for settlement of damage to dam caused by barge accident in April 1978.
¹⁰ Major rehabilitation (\$8,876,000) initiated in FY 79 is complete.
¹¹ Major rehabilitation (\$4,593,572) initiated in FY 79 is complete.

- ¹² For preconstruction planning 1965 to 1972. No longer considered authorized. (See Section 1 of Text.)
¹³ Includes \$37,485,870 for major rehabilitation completed in FY 84
¹⁴ Includes \$33,914,252 for major rehabilitation completed in FY 90 (O&M funds).
¹⁵ Includes \$33,016,696 for major rehabilitation completed in FY 89.
¹⁶ Includes \$188,072,098 Inland Waterways Trust Funds.
¹⁷ Includes \$300,059,899 Inland Waterways Trust Funds.
¹⁸ Includes \$54,282,930 Inland Waterways Trust Funds.
¹⁹ Exclusive of \$7,013,405 details below.

Additional Features Entering into Cost of Project	
Louisville and Portland Canal and Indiana chute (under previous project).	\$5,359,203
Examinations, survey contingencies, plants, and miscellaneous	966,232
Waterfront Development at Huntington, WV (Greenup Pool)	19,170
Recreation facilities, pool area, Gallipolis Locks and Dam.	668,800
	Total 7,013,405
Grand Total	\$2,584,629,297

BUFFALO, NY DISTRICT

The District comprises northern OH, northwestern PA and western and northern NY, embracing U.S. waters of Lake Erie exclusive of a small portion of the western end, Lake Ontario, and St. Lawrence River, with their tributary drainage basins from boundaries between the states of OH and MI to international boundary line east of Frontier, NY.

IMPROVEMENTS

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NAVIGATION

1. ASHTABULA HARBOR, OH

Location. On the south shore of Lake Erie, at mouth of Ashtabula River, 59 miles easterly from Cleveland, OH. (See NOAA Nautical Chart 14836.)

Previous projects. For details see pg. 1963 of Annual Report for 1915, and pg. 1593 of Annual Report for 1938.

Existing project. For description see pgs. 1297-99 of Annual Report for 1966. Federal cost of completed project is \$12,240,147. Non-Federal costs of \$5,743,000, including contribution of \$47,000, were for construction of access roads, docks, storage and handling facilities and dockside dredging. (See Table 20-B for authorizing legislation.)

Local cooperation. Fully complied with. Local interests contributed \$47,000 for work authorized by 1936 and 1970 Acts.

Terminal facilities. There are sixteen piers and wharves. Coast Guard owns one facility. Ten facilities are along banks of Ashtabula River and six are on south side of outer harbor. Eleven terminals have railroad connections and six have mechanical handling facilities. Facilities are considered adequate for existing commerce. (See Port Series No. 42, revised 1972, Corps of Engineers.)

Operations and results during fiscal year.

Maintenance: Federal funds for project condition surveys cost \$30,000. The U.S. Derrick boat *McCauley* and the Tug *Koziol* were used to repair 600 lf. of West Breakwater, rebuild 255 lf. of East Breakwater (laid up inside (Station 1350 to 1605) rubble mound outside), repair 255 lf. of rubble mound on East Breakwater, snag and clear 7 trees and remove and replace Light No. 4 for the Coast Guard. Dredging cost \$460,441 to remove approximately 35,380 cubic yards of shoaled material from the inner harbor. (Depth 28 ft. LWD; width 1,000 ft; length .5 mi.) A total of \$331,769 was expended for the Ashtabula River Partnership Project for removal of contaminated sediments from the Ashtabula River. This amount includes \$2,670 expended for coordination with partnering agencies, \$27,868 expended for the project's Comprehensive Management Plan and Environmental Impact Statement, and \$301,231 expended for continuation of Preconstruction Engineering and Design.

2. BLACK ROCK CHANNEL AND TONAWANDA HARBOR, NY

Location. Improvement is essentially that of upper 13.5 miles of Niagara River from its head at Lake

Erie, Buffalo, NY, to and including Tonawanda Harbor, NY. It comprises improvements formerly designated by three titles; Lake Erie entrance to Black Rock Harbor and Erie Basin, NY, Black Rock Harbor and Channel, NY and Tonawanda Harbor and Niagara River, NY. (See NOAA Nautical Chart 14832.)

Previous projects. For details, see items 5 and 7, pg. 1970 of Annual Report for 1915, and pg. 1612 of Annual Report for 1938.

Existing project. For description of existing project and Federally owned Black Rock ship lock, see pg. 1548 of Annual Report for 1962. Improvement of guide pier at Black Rock Lock, as authorized by 1935 Act was de-authorized by Congress in Aug 1977. Cost for completed portion of new work is \$10,457,093. Enlarging of existing 21-foot turning basin and deepening lower 1,500 feet of Tonawanda Inner Harbor from 16 to 21 feet, authorized by the 1954 Act, was de-authorized by Congress in May 1981, and is excluded from foregoing cost. Non-Federal costs are estimated at \$1,540,000 for costs incurred by NY State for construction of Erie Basin and protecting breakwater, and construction and extension of Bird Island Pier, and by other local interest for relocation of utilities. (See Table 20-B for authorizing legislation.)

Local cooperation. Fully complied with for existing project. Contract for cost-shared recreation development at completed projects (Code 713 program) was executed by the NY State Department of Environmental Conservation, Albany, NY on Apr 16, 1985, and was approved by the Assistant Secretary of the Army and Chief of Engineers on May 3, 1985.

Terminal facilities. Two facilities are along the upstream end of the channel. Below Black Rock Lock and at Tonawanda Harbor there are 13 privately owned terminals. There are two State-owned barge canal terminals at Tonawanda, NY, and several marine service and supply docks for recreational and other small craft. The Corps owns a wharf adjacent to Black Rock Lock that is private. Ten terminals have railroad connections and six mechanical-handling facilities. Facilities considered adequate for existing commerce. (Port Series No. 41, revised 1971, Corps of Engineers.)

Operations and results during fiscal year

Maintenance: The lock did not close for major maintenance during the 2003 fiscal year. All maintenance required during FY 2003 was accomplished with minimal impact on commercial and recreational navigation interests. Total costs of \$1,950,390 were distributed as follows: Operation and care of lock and ordinary maintenance and repair cost \$955,486. Project condition surveys cost

BUFFALO, NY DISTRICT

\$4,110; water control management cost \$17,997. A cost of \$55,966 was incurred for clearing and snagging; \$11,840 for stream gaging; \$829,733 for rehabilitation of the upper west wall; \$3,671 for rehabilitation of the upper west wing wall; \$50,351 for engineering analysis of the lower west guide wall; \$19,133 for real estate support and \$2,104 for the O&M manual update.

3. BUFFALO HARBOR, NY

Location. At eastern end of Lake Erie, at head of Niagara River, 176 miles easterly from Cleveland, OH. (See NOAA Nautical Charts 14820 and 14833.)

Previous projects. For details see pg. 1967 of Annual Report for 1915 and pg. 1606 of Annual Report for 1938.

Existing project. For description see pg. 1368 of Annual Report for 1963. In addition, on Dec 15, 1980, OCE authorized the removal of bridge abutments of South Michigan Avenue Bridge. New work for completed project cost \$18,837,601. Estimated non-Federal costs were \$9,188,000 for deepening, widening, and improving Buffalo River and ship canal, constructing piers, retaining walls, and dikes and performing dockside dredging. (See Table 20-B for authorizing legislation.)

Local cooperation. Fully complied with.

Terminal facilities. There are 27 piers, wharves, and docks of which five are on the outer harbor, nine are on the Lackawanna, Union, and Buffalo Ship Canals, and thirteen are located along the deep-draft section of the Buffalo River. Gateway Metroport, Division of Gateway Trade Center, Inc., owns and operates, for the former Bethlehem Steel Corp., wharves at Lackawanna for the receipt and shipment of general cargo and bulk commodities. Buildings of the former steel plant are utilized for transit and long-term storage of cargo as required. The Niagara Frontier Transportation Authority owns Terminals A and B in the outer harbor used for handling general cargo. Twenty terminals have railroad connections. The City of Buffalo owns a slip on the right bank of Buffalo River just north of Michigan Avenue Bridge for mooring the city fireboat. Coast Guard facilities are at the mouth of Buffalo River along the left bank. (See Port Series No. 41, revised 1991, U.S. Army Corps of Engineers.)

Operations and results during fiscal year.

Maintenance: Federal funds for real estate support cost \$9,830; project condition surveys cost \$49,970; water control management cost \$32,047. \$170,601 was expended to rebuild 144 linear feet of collapsed crown on the North Breakwater using the U.S. Derrick boat *McCauley* and the Tug *Koziol*. Coastal mapping cost \$101,489; engineering and design of

the North Breakwater cost \$147,683. Dredging cost \$520,108 to remove approximately 78,750 cy of shoaled material. Environmental activities cost \$16,330.

4. BUFFALO HARBOR ENVIRONMENTAL DREDGING, NY

Location: The eastern end of Lake Erie at the head of the Niagara River, 176 miles easterly from Cleveland, OH.

Previous projects: None

Existing project: An outer harbor, about 4-1/2 miles long and 1,600 feet wide, formed by a breakwater system, approximately parallel to the lake shore, 22,718 feet in length, with entrances near north end and south end and one confined disposal facility. A west breakwater 1,800 feet long located in Lake Erie protecting the north entrance. The inner harbor consists of a south pier at the mouth of the Buffalo River, about 5.8 miles of Federal Channel in the Buffalo River, and a 2-mile channel in the Buffalo Ship Canal.

Local cooperation: Fully complied with.

Terminal facilities: There are 13 wharves and docks located along the deep-draft section of the Buffalo River. Grain storage facilities, a cement transfer operation and a fuel storage/transfer operation are found along the Buffalo River on both banks. The City of Buffalo owns a slip on the right bank of Buffalo River just north of Michigan Avenue Bridge for mooring the city fireboat. Coast Guard facilities are at the mouth of Buffalo River along the left bank. (See Port Series No. 41, revised 1991, U.S. Army Corps of Engineers.)

Operations and results during fiscal year.

Maintenance: \$14,244 was expended to finalize the write-up of the recon report that involved the initiation of an investigation on the dredging of contaminated sediments outside and adjacent to the Federal navigation channels in Buffalo Harbor and in the Buffalo River. The recon report was submitted to HQ for certification in Dec 03. GI funds were budgeted for in FY04 to prepare a feasibility phase PMP and execute a Feasibility Phase Cost Sharing Agreement (FCSA).

5. CLEVELAND HARBOR, OH

Location. On south shore of Lake Erie, at mouth of Cuyahoga River, 176 miles westerly from Buffalo, NY. (See NOAA Nautical Chart 14839.)

Previous projects. For details see pg. 1962, Annual Report for 1915, and pg. 1585, Annual Report for 1938.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

Existing project. For description of existing project, as authorized through the 1966 modification, see pg. 1269 of Annual Report for 1967. Further improvements in the interest of commercial navigation and recreational navigation were authorized in the 1985 Supplemental Appropriations Act (PL 99-88). For details of the commercial navigation portion of the project, see pg. 20-4 of the Annual Report for 1995. For details of the recreational navigation portion of the project, see pg. 20-3 of Annual Report for 1994. The Water Resources Development Act of 1986 (PL 99-662) and the FY 88 Energy and Water Appropriations Act (PL 100-202) authorized the recreational navigation project. These acts authorized additional undefined improvements to Cleveland Harbor. A portion of the project was de-authorized by the Inter-model Surface Transportation Efficiency Act of 1991. Estimated total Federal cost of the existing project is \$33,852,100 (Oct 1991) exclusive of undefined, inactive and deferred portions of the project. The amount of \$29,315,100 is for completed work and the balance of \$4,537,000 is for new work. Estimated non-Federal cost is \$13,740,000 (Oct 1991) of which \$9,203,000 is actual cost for completed work and the balance of \$4,537,000 is required for work authorized by PL 99-88, PL 99-662, and PL 100-202. Remaining work authorized by 1946 River and Harbor Act, consisting of widening and deepening the right bank of Cuyahoga River at the downstream end of Cut 4, is considered inactive and excluded from foregoing cost estimate. Estimated Federal cost (1966) of this portion is \$85,600 and non-Federal cost (1966) \$5,000,000. Remaining work authorized by 1958 R&H Act, consisting of planning and replacement of bridges number 19 (E.L.R.R.) and 32 (B. & O.R.R.) and widening Cuyahoga and Old River channels, and remaining work authorized by the 1960 R&H Act, consisting of deepening the remainder of the Cuyahoga River from bridge number 1 to and including the Old River to a depth of 27 feet, has been classified as deferred and is also excluded from foregoing estimate. Estimated Federal cost (Oct 1976) of this portion is \$18,033,300 and estimated non-Federal cost (Oct 1976) is \$21,251,000. The 1989 Energy and Water Development Appropriations Act (PL 101-101) authorized the Corps to begin a Reconnaissance study of the Cuyahoga River, to address the concerns of boat traffic congestion and related risks, accidents and safety of the public. Preliminary plans were studied to alleviate the commercial navigation problem and inadequate width and depth, in the Old and Cuyahoga Rivers. The cost of this Reconnaissance study was \$250,000. The Reconnaissance Report recommended a feasibility study for one plan which has three structural features

and the potential for yielding commercial (priority) outputs. The non-Federal sponsor did not commit to provide its total share of the cost of the feasibility phase of the study. Therefore, the study was reclassified as "inactive". (See Table 32-B for authorizing legislation.) A confined disposal facility (CDF) (Dike 10B) was constructed adjacent to the Burke Lakefront Airport for containment of dredged material from Cleveland Harbor. The rubble mound structure was designed to hold material unsuitable for open-lake disposal. The sixty-eight (68) acre site should provide sufficient CDF capacity for approximately twenty years. The project was constructed with Federal O&M funds at a cost of \$17,500,000 and was completed in 1998.

Terminal facilities. Fifty-one piers, wharves, and docks are situated in the Port of Cleveland. Eleven are located in the east and west basins of the outer harbor; 7 along the banks of the Old River and 17 and 16 along the right and left banks of the Cuyahoga River, respectively. Twenty-two terminals have both railroad connections and mechanical-handling facilities. The Corps owns a wharf at the foot of East 9th Street. The City of Cleveland owns and operates a wharf for mooring the city fireboat. U.S. Coast Guard vessels are moored east of the foot of 9th Street in the east basin. (See Port Series No. 43, revised 1989, U.S. Army Corps of Engineers.)

Operations and results during fiscal year.

Maintenance: Federal funds for project condition surveys cost \$50,000; dredging cost \$2,122,817 to remove approximately 355,000 cubic yards of shoaled material from the Cuyahoga River. (Depth 23-26 ft. LWD; width 100+ ft.; length 5.5 mi.) Contract will be finalized in FY 04. Costs for the Confined Disposal Facility (CDF) Site 10B cost \$81,562. In order to achieve original design consolidated capacity of 2,900,000 cubic yards at the CDF, a capacity investigation and the design of the south perimeter berm were initiated in May 2003. Technical documents will be completed in January 2004. Following FAA review and approval, a berm or filling plan will be implemented. A total of \$809,123 was expended to repair 30 lf. of the East Breakwater (station 28+50 to 28+80); 300 lf. of rubble mound on the West Arrowhead (lakeside); rebuild 200 lf. of the West Arrowhead (100 lf. lakeside, 100 lf. shore side); rebuild 60 lf. of the East Shore Arm of the East Arrowhead at three locations and snag and clear at the East Shore Arm and harbor channel. \$1,737 was expended for coordination with Detroit District to evaluate feasibility of using Detroit's floating plant to repair the east rubble mound breakwater and complete cost comparison with contract construction. Real estate support cost \$10,851; engineering and design of the East

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Breakwater cost \$268,153. Economic evaluation of the harbor, a review of future dredge disposal capacity, and preliminary investigations to determine the feasibility of extending the life of the existing CDF, cost \$105,679. Initiation of the DMMP Phase I was initiated in May 2003 and will be completed in May 2004. The Preliminary Assessment and Scope of Work were drafted during FY 2003 and will be completed in FY 2004. Extensive DMMP coordination with the Cleveland area Federal and non-Federal municipal and regulatory agencies occurred during FY 2003. A Letter of Intent will be provided to the Corps of Engineers in FY 2004. In addition, an Interim Dredged Material, Disposal Study as initiated and will be completed in FY 2004. A credit of \$14,990 was a result a Real Estate Administrative Fee collection for processing an outgrant with the Northeast Ohio Regional Sewer District for a sewer outfall extending thru the U.S. West Breakwater.

6. CONNEAUT HARBOR, OH

Location. On the south shore of Lake Erie, at mouth of Conneaut River, 73 miles easterly from Cleveland, OH. (See NOAA Nautical Chart 14824.)

Previous projects. For details see pg. 1964, Annual Report for 1915.

Existing project. For description see pg. 1274 of Annual Report for 1967. Actual costs for new work for completed portion of the project were \$7,541,369. For completed work, non-Federal costs were \$200,000 for dockside dredging and removal of existing dolphins. The most southerly 300 feet of the 1,670 foot long shore arm, authorized by the R&H Act of 1910, was de-authorized Oct. 96. (See Table 20-B for authorizing legislation.)

Local cooperation. Fully complied with for completed portion of project.

Terminal facilities. There are seven piers and wharves. Six are privately owned and operated and located in inner harbor. Remaining facility is city owned on the south side of outer harbor. Six terminals have railroad connections and four mechanical-handling facilities. (See Port Series No. 42, revised 1972, Corps of Engineers.)

Operations and results during fiscal year.

Maintenance: Federal funds for project condition surveys cost \$16,000. Environmental studies cost \$47,377. Structure repairs cost \$398,363 to repair 850 l.f. of West Breakwater and to fortify rubble mound around the navigation light and East Breakwater.

7. DUNKIRK HARBOR, NY

Location. On south shore of Lake Erie, 37 miles southwesterly from Buffalo, NY. (See NOAA Nautical Chart 14823.)

Previous projects. For details see pg. 1966 of Annual Report for 1915, and pg. 1604 of Annual Report for 1938.

Existing project. For description of completed portion of existing project see pg. 32-8 of Annual Report for 1976. For description of small boat harbor project as authorized under Section 201 of Flood Control Act of 1965, see pg. 32-8 of Annual Report for 1978. Actual costs for completed work are \$3,010,024. Actual non-Federal costs are \$1,961,000. (See Table 20-B for authorizing legislation.)

Local cooperation. Fully complied with.

Terminal facilities. Facilities consist of private docks for recreational craft and privately owned servicing and storage handling facilities for recreational and other small craft.

Operations and results during fiscal year.

Maintenance: Federal funds for project condition surveys cost \$29,925. \$208,825 was expended for dredging to remove approx. 13,961 cubic yards from the outer entrance channel. (Depth 17 ft. LWD; width 300 ft.; length 600 ft.) \$100,774 was expended to clear brush off the breakwater using the workboat *Palmetto*.

8. ERIE HARBOR, PA

Location. On southerly side of bay formed by Presque Isle Peninsula, on south shore of Lake Erie, 78 miles westerly from Buffalo, NY. (See NOAA Nautical Chart 14835.)

Previous projects. For details see pg. 1965 of Annual Report for 1915 and pg. 1600 of Annual Report for 1938.

Existing projects. For description see pgs. 1363-64 of Annual Report for 1963. The FY 93 Appropriations Act (PL102-377) authorized the planning, design and dredging of an access channel and berthing area. Entire project modification authorized by 1945 River and Harbor Act, providing for deepening channel and basin, both 23 feet deep, to Penn Central Company coal docks at westerly end of harbor, was de-authorized by Congress in Aug 1977. Actual costs for new work for completed portion of project were \$2,860,906. Extension of north pier portion, authorized by 1899 Act was de-authorized in Nov 1981. A portion of work authorized by 1960 Act, deepening strips adjacent to north and south piers, was de-authorized in Aug 1982. Non-Federal costs for completed work were \$51,000 for providing ore dock and dredging slip adjacent thereto. (See Table 20-B for authorizing legislation.)

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Local cooperation. Fully complied with.

Terminal facilities. Sixteen piers and wharves, of which twelve are privately owned and operated. Erie International Marine Terminal No. 1 owned by Port Commission, City of Erie, is along main waterfront on south side of Presque Isle Bay and Coast Guard facilities are on north side. Two offshore oil docks are on Lake Erie. Eight terminals have railroad connections and six mechanical-handling facilities. Facilities are considered adequate for existing commerce. (See port Series No. 42, revised 1972, Corps of Engineers.)

Operations and results during fiscal year.

Maintenance: Federal funds for project condition surveys cost \$40,000; real estate cost \$10,000; and environmental activities cost \$40,905. Miscellaneous costs for the Confined Disposal Facility were \$975. The north pier safety ladders cost \$39,230.

9. FAIRPORT HARBOR, OH

Location. On south shore of Lake Erie at mouth of Grand River, 33 miles easterly from Cleveland, OH. (See NOAA Nautical Chart 14837.)

Previous projects. For details see pg. 1963 of Annual Report for 1915, and pg. 1590 of Annual Report for 1938.

Existing project. For description of existing project, see pg. 1526 of Annual Report for 1962. Total Federal cost of \$2,591,000 is actual cost for completed portion of project. Total non-Federal cost is \$101,000 for bulkheads and dockside dredging for completed portion of project. (See Table 20-B for authorizing legislation.)

Local cooperation. See pg. 32-11 of 1976 Annual Report regarding assurances of local cooperation for work authorized by R&H Act of 1927.

Terminal facilities. Sixteen piers and wharves, all along banks of Grand River. Coast Guard owns one facility. Nine terminals have railroad connections and ten mechanical-handling facilities. Facilities considered adequate for existing commerce. (See Port Series No. 42, revised 1972, Corps of Engineers.)

Operations and results during fiscal year.

Maintenance: Federal funds for project condition surveys cost \$40,000. Dredging cost \$673,159 to remove approximately 67,775 cubic yards of shoaled material from the entrance channel and river. (Depth from 22-26 ft.; width 200+ ft.; length 1.5 mi.) \$765,225 was expended to repair 300 l.f. rubble mound on the East Breakwater and rebuild 200 l.f. of East Breakwater, station 1220 to 1100.

10. GREAT SODUS BAY HARBOR, NY

Location. On Sodus Bay, which is a nearly land-locked indentation on south shore of Lake Ontario, 29 miles westerly from Oswego, NY. (See NOAA Nautical Chart 14814.)

Previous project. For details, see pg. 1972 of Annual Report for 1915, and pg. 1526 of Annual Report for 1938.

Existing project. For description, see pg. 1380 of Annual Report for 1963. Improvements authorized by 1962 Act, consisting of deepening lake approach channel, entrance channel and inner approach channel were deauthorized by Congress in Aug 1977. Actual costs of new work for completed portion of project were \$249,187. Costs incurred by local interests are not available. (See Table 20-B for authorization legislation.)

Local cooperation. Fully complied with.

Terminal facilities. Facilities consist of private docks for recreational craft and privately owned servicing and storage handling facilities for recreational and other small craft.

Operations and results during fiscal year.

Maintenance: Federal funds for project condition surveys cost \$17,912 and real estate activities resulted in a credit of \$37. Environmental activities cost \$6,930 and coastal mapping cost \$57,843.

11. HURON HARBOR, OH

Location. On south shore of Lake Erie at mouth of Huron River, 47 miles westerly from Cleveland, OH. (See NOAA Nautical Chart 14843.)

Previous project. For details, see pg. 1961 of Annual Report for 1915, and pg. 1576 of Annual Report for 1938.

Existing project. For description, see pg. 1347 of Annual Report for 1963 and pg. 32-12 of Annual Report for 1978. Cost of completed portion of existing project was \$4,834,006. Construction of detached breakwater as authorized by 1962 R&H Act was de-authorized Jan 1, 1990. Non-Federal costs of \$163,000 were incurred by local interests in 1963 for dockside dredging of areas between Federal improvement and terminal facilities. (See Table 20-B for authorizing legislation.)

Local cooperation. Fully complied with.

Terminal facilities. Six privately owned wharves and docks, one along left bank of Huron River and remainder along right bank. Four terminals have railroad connections and four mechanical-handling facilities. Facilities are regarded as adequate for existing commerce. (See Port Series No. 42, revised 1972, Corps of Engineers.)

Operations and results during fiscal year.

Maintenance: Federal funds for project condition surveys cost \$50,000. Dredging cost \$870,898 to

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dredge 223,931 cubic yards of shoaled material from the inner river. (Depth 27 ft.; width 150+ ft.; length 3,000 ft.)

12. LITTLE SODUS BAY HARBOR, NY

Location. Little Sodus Bay, on south shore of Lake Ontario, 15 miles west of Oswego, NY. (See NOAA Nautical Chart 14803.)

Previous projects. For details see page 1973 of Annual Report for 1915, and page 1628 of Annual Report for 1938.

Existing project. For description see page 1378 of Annual Report for 1958. New work for completed project cost \$69,066. Non-Federal costs of \$6,000 were incurred for channel dredging. (See Table 20-B for authorizing legislation.)

Local cooperation. Not required.

Terminal facilities. Facilities consist of private docks for recreational craft and privately owned servicing and storage handling facilities for recreational and other small craft.

Operations and results during fiscal year.

Maintenance: Federal funds for environmental activities cost \$6,969; coastal mapping cost \$57,978; and real estate costs resulted in a credit of \$51.

13. LORAIN HARBOR, OH

Location. On south shore of Lake Erie at mouth of Black River, 25 miles westerly from Cleveland, OH. (See NOAA Nautical Chart 14841.)

Previous projects. For details, see pg. 1961 of Annual Report for 1915, and pg. 1580 of Annual Report for 1938.

Existing project. For description see pgs. 1319-22 of Annual Report for 1966. Federal cost of new work is \$20,475,000. Deepening and widening remainder of Black River Channel at Cut 1 and construction of bank stabilization, authorized by 1960 Act and modified by 1965 Act was de-authorized Jan 1, 1990. A portion of work authorized by 1960 Act, dredging of 15-to-25 foot wide strips adjacent to the U.S. East and West Piers were also de-authorized Jan 1, 1990. Total non-Federal cost is \$3,000 contributed by local interests towards construction of west shore arm. (See Table 20-B for authorizing legislation.) The Water Resources Development Act (WRDA) of 1986 (PL 99-662) authorized construction of commercial navigation improvements consisting of two bend cuts on the Black River to widen and straighten the channel between the Norfolk and Western Railroad Bridge and the 21st Street Bridge. These cuts are to be excavated to the existing channel depth of 27 feet. The authorized plan also includes widening the Upper Turning Basin at the existing depth of 21 feet.

Estimated costs for this work are \$2,290,000 Federal and \$1,510,000 non-Federal (Oct 1989). This portion of the project has been classified deferred. On Mar 12, 1986, the Chief of Engineers under authority of Section 107 of the 1960 River and Harbors Act, as amended, authorized construction of a small boat harbor that was completed in Jul 1987. The project consists of a 225-foot detached rubble mound breakwater and an 800-foot long rubble mound breakwater attached to the east breakwater shorearm in the east basin of the outer harbor. Construction costs for this project, including supervision and administration, were \$775,025 Federal and \$775,025 non-Federal.

Local cooperation. For completed work, local interests contributed \$3,000. Work authorized by 1960 Act (and modified by 1965 Act) is de-authorized. All other conditions fully complied with. On Mar 25, 1986, the City of Lorain, OH signed the Local Cooperation Agreement (LCA), for the Section 107 project. For details see pg. 32-7 of Annual Report for 1986. For details of LCA for deferred project authorized by the 1986 WRDA, see pgs. 32-9 of Annual Report for FY 87.

Terminal facilities. There are 23 piers and wharves, of which three are on the outer harbor and the remainder is along banks of Black River. Two are owned by the city. Eight terminals have railroad connections and 15 mechanical-handling facilities. Facilities are considered adequate for existing commerce. (See Port Series No. 42, revised 1972, Corps of Engineers.)

Operations and results during fiscal year.

Maintenance: Federal funds for project condition surveys cost \$50,000. Federal funds for the East Pier construction (880 feet long by 20 feet wide) cost \$1,907,010. The project is 98% complete. The contract will be finalized in FY 2004. The construction contract (\$2.8 million) for the West Pier (1,000 feet long by 17 to 23 feet wide) was awarded in Sep 2003. \$280,970 was expended on the West Pier for plans and specifications, field inspections, diving inspections, subsurface investigation, Design Document Report, and a value engineering study. Construction of the project is about 5% complete. Real estate cost was \$2,000. A credit of \$850 was a result of a real estate administrative fee collected for processing an Outgrant with the Lorain Port Authority for recreational use of the Lorain Harbor, OH, Federal navigation project. Dredging cost \$504,171 to remove approximately 61,917 cubic yards of shoaled material from the Federal channel. (Depth 18-28 ft.; Width 240 ft.; Length 14,000 ft.) Costs for initiating the Dredged Material Management Plan (DMMP) were \$244,305. These costs included the cost of completing the Preliminary

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Assessment and Scope of Work for the DMMP. \$119,860 was expended to modify the weir structure. \$ 683,483 was expended to repair 300 l.f. of rubble mound on the West Breakwater; rebuild 250 l.f. of West Breakwater (125 l.f. lakeside; 125 l.f. shore side); rebuild 20 l.f. of collapsed crown and slope stone on the West Breakwater; and install missing truck tire bumpers along Lorain City Dock.

14. OAK ORCHARD, NY

Location. On south shore of Lake Ontario, at mouth of Oak Orchard Creek, 33 miles westerly of Rochester, NY. (See NOAA Nautical Chart 14805.)

Previous project. For details see pg. 628 of Annual Report for 1905.

Existing project. For description of completed existing project see pg. 32-14 of 1975 Annual Report. Actual Federal cost for completed project was \$1,613,500. Estimated non-Federal cost is \$270,000 (Jul 1971) including cash contribution of \$170,700 and \$54,002 for recreational facilities and remainder for lands and construction of wharf. Existing project was authorized by the 1945 River and Harbor Act (H. Doc. 446, 78th Cong., 2nd sess.).

Local cooperation. Fully complied with. Local interests contributed \$224,702.

Terminal facilities. There is no commercial navigation at Oak Orchard Harbor. Terminal facilities consist of private docks for recreational craft.

Operations and results during fiscal year. Maintenance: Federal funds for environmental activities were \$29,832. Real estate activities resulted in a credit of \$25.

15. OLCOTT HARBOR, NY

Location. On south shore of Lake Ontario at mouth of Eighteen Mile Creek about 18 miles east of mouth of Niagara River and 63 miles by water west of Rochester, N.Y. (See NOAA Nautical Chart 14806.)

Previous project. For details see page 1971 of Annual Report for 1915 and page 1621 of Annual Report for 1938.

Existing project. For description see page 1555 of Annual Report for 1962. Cost of new work for completed project was \$1,500 exclusive of amount expended on previous projects, all of which was contributed by local interests. (See Table 20-B for authorizing legislation.) The authorized modification to the existing project consists of breakwaters to provide optimum harbor protection a stone jetty and recreational fishing facilities including a footbridge, walkways and guardrails, access facilities, sanitary

facilities and parking areas. The estimated cost of the authorized modification is \$17,000,000 (Oct. 1990) of which \$8,500,000 is Federal and \$8,500,000 is non-Federal. Modification of the existing project was authorized by the 1986 Water Resources Development Act (WRDA) (PL 99-662).

Local cooperation. Fully complied with for completed project. Local interests contributed \$1,500. Modifications authorized by the 1986 WRDA will require local interests to pay 50% of project cost including lands easements, right-of-way and dredge disposal areas. They are also responsible for construction of necessary docks and berthing spaces, construction of launching ramp, parking areas, sanitary facilities, and necessary access roads. After construction, non-Federal responsibilities would include fishing facility maintenance, except for the aids to navigation.

Terminal facilities. Facilities consist of private docks for recreational craft and privately owned servicing and storage handling facilities for recreational and other small craft.

Operations and results during fiscal year. Maintenance: Federal funds for real estate support cost \$5,000.

16. OSWEGO HARBOR, NY

Locations. On South shore of Lake Ontario, at mouth of Oswego River, 59 miles easterly from Rochester, NY. (See NOAA Nautical Chart 14813.)

Previous projects. For details see pg. 1973 of Annual Report for 1915, and pg. 1630 of Annual Report for 1938.

Existing project. For description see pgs. 1383-84 of Annual Report for 1963. Completed portion of project cost \$7,242,039 and non-Federal costs for completed work were \$4,440,000 for lands, dockside dredging, construction of terminal wharves, and cargo handling facilities. Deepening a 200-foot wide strip along harbor line east of mouth of Oswego River, remaining feature of work authorized by the 1930 Act, was de-authorized Jan 1, 1990. Deepening to 22 feet a 150-foot wide strip along harbor line in west outer harbor, remaining feature of work authorized by 1940 Act, was de-authorized in May 1981. The portion of the Federal Channel from the southernmost alignment of the Route 68 Bridge upstream to the northernmost alignment of Lake Street Bridge authorized by the 1910 R&H Act as amended by the 1935 R&H Act was de-authorized Oct 96. (See Table 20-B for authorizing legislation.)

Local cooperation. Fully complied with.

Terminal facilities. There are seven piers and wharves in the harbor and along the river channel. The Port of Oswego owns and operates a general

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cargo terminal at the mouth of the Oswego River. The Port Authority also operates a grain elevator west of the mouth of the river. The U.S. Coast Guard moors patrol and environmental research vessels west of the mouth of the river.

Operations and results during fiscal year.

Maintenance: Federal funds for environmental activities cost \$87,966 and coastal mapping cost \$57,978. Real estate cost resulted in a credit of \$18.

17. OTTAWA RIVER HARBOR, MI & OH

Location. At westerly end of Lake Erie, at Toledo, OH 99 miles westerly from Cleveland, OH (See NOAA Nautical Chart 14847).

Existing project. A reevaluation study and report investigated the authorized project as described in the 1976 Phase I General Design Memo (GDM) and developed several scaled down alternatives including: (1) No Action, (2) dredging of a five-foot shallow draft recreational access channel approximately 14,700 feet in length from Lake Mile (LM) 3.15 of the Toledo Harbor shipping channel in a northwesterly direction to the mouth of the Ottawa River then continuing approximately 9,500 feet upstream to the Summit Street Bridge. (3) Same as 2 except at four-feet deep. (4) Same as 2 except extending a four-foot channel approximately 8,000 feet in the Ottawa River between Summit Street and Suder Avenue. (5) Same as 2 except adding by dredging an additional four-foot channel, approximately 5,100 feet in length, extending from the approximate mouth of the river to the public launch site on the north shore of Halfway Creek. (6) Same as 2 except adding by dredging an additional four-foot channel, approximately 4,500 feet in length, extending from the approximate mouth of the river to the public launch site on the north shore of Hooper Run. (7) Same as 4 except adding by dredging both an additional four-foot channel, approximately 5,100 feet in length, extending from the approximate mouth of the river to the public launch site on the north shore of Halfway Creek and an additional four-foot channel, approximately 4,500 feet in length, extending from the approximate mouth of the river to the public launch site on the north shore of Hooper Run (8) same as 2 except adding by dredging both an additional four-foot channel, approximately 5,100 feet in length, extending from the approximate mouth of the river to the public launch site on the north shore of Halfway Creek and an additional four-foot channel, approximately 4,500 feet in length, extending from the approximate mouth of the river to the public launch site on the north shore of Hooper Run. The locally preferred plan is 8, dredging of a five-foot shallow draft recreational access channel approximately 14,700 feet in length from Lake Mile

(LM) 3.15 of the Toledo Harbor shipping channel in a northwesterly direction to the mouth of the Ottawa River then continuing approximately 9,500 feet upstream to the Summit Street Bridge and dredging both an additional four-foot channel, approximately 5,100 feet in length, extending from the approximate mouth of the river to the public launch site on the north shore of Halfway Creek and an additional four-foot channel, approximately 4,500 feet in length, extending from the approximate mouth of the river to the public launch site on the north shore of Hooper Run. However, at the present time this plan has not received approval. The project, originally authorized under provisions of Section 201 of the 1965 Flood Control Act, (PL 89-298) by the House and Senate Committees on Public Works Resolutions, dated December 15 and 17, 1970, respectively, was continued by the 1990 Water Resources Development Act (PL 101-640).

Local cooperation. The potential local sponsor is the city of Toledo, OH. The local sponsor must provide 50% of the total project cost that includes lands, easements, rights-of-way, and relocations.

Operations and results during fiscal year. New Work: FY03 cost was \$116,691 to conduct a new reevaluation study and write the Reevaluation Report.

18. PORT CLINTON HARBOR, OH

Location. Comprises lower half-mile of Portage River. River empties into Lake Erie 72 miles westerly from Cleveland, OH. (See NOAA Nautical Chart 14820.)

Existing project. Provides for parallel jetties at river mouth and a channel in Lake Erie and Portage River with a project depth of 10 feet. For additional details, see pg. 1899 of Annual Report for 1951. (See Table 20-B for authorizing legislation.)

Terminal facilities. A total of 11 docks exist; one public fish dock, one private sand dock, one private fuel dock, one lumber dock, one coal dock and five private docks. The Village of Port Clinton owns a dock at the foot of Madison Avenue that is open to the public. A shipyard builds small boats. Terminal facilities are adequate for existing commerce.

Operations and results during fiscal year.

Maintenance: Federal funds for real estate support cost \$29,899.

19. PORT ONTARIO HARBOR, NY

Location. On southeasterly end of Lake Ontario, 19 miles northeasterly of Oswego, N.Y. and 32 miles southerly of Sackets Harbor, N.Y. (See NOAA Nautical Chart 14803.)

Previous projects. Adopted by the River and

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Harbor Act July 4, 1836. Only information available is the index to the report of the Chief of Engineers.

Existing project. As modified by Phase I and II General Design Memorandum, provides for: (a) two shore connected rubble mound breakwaters in Lake Ontario at mouth of Salmon River, south breakwater about 1,350 feet and north breakwater about 350 feet long; (b) entrance channel between breakwaters, 100 feet wide and 8 feet deep, from deep water in lake to a limit about 1,200 feet from 8-foot depth contour in lake; (c) river channel 85 feet wide and 6 feet deep from inner limit of entrance channel for a distance upstream of about 450 feet. Federal cost for project was \$2,221,873. Non-Federal cost for new work was \$1,467,132 including cash contribution of \$1,431,507. Existing project was authorized by the River and Harbor Act of Mar 2, 1945 (H. Doc 446, 78th Cong., 2d sess.).

Local cooperation. See page 32-16 of Annual Report for 1976 for details of requirements of local cooperation. Assurances were received from the New York State Office of Parks, Recreation and Historic Preservation. The LCA was executed on Jun 24, 1986.

Terminal facilities. The only commercial navigation at Port Ontario is charter boat fishing. Terminal facilities consist of private docks for recreational craft.

Operations and results during fiscal year. Maintenance: Federal funds for real estate support resulted in a credit of \$26.

20. ROCHESTER HARBOR, NY

Location. On south shore of Lake Ontario, at mouth of Genesee River, 59 miles westerly from Oswego, NY. (See NOAA Nautical Chart 14815.)

Previous project. For details see pg. 1471 of Annual Report for 1915, and pg. 1623 of Annual Report for 1938.

Existing project. For description see pg. 1556 of Annual Report for 1962. Actual cost for new work for completed project is \$2,191,514. Non-Federal costs are estimated at \$2,260,000, all for 1960 Act, for lands, relocation of submarine cable crossing, relocations of small docks and boathouses, dockside dredging, structure modifications, and replacement of Baltimore & OH coal loader. (See Table 20-B for authorizing legislation.)

Local cooperation. Complied with except provision for replacement of coal loading facility as required by River and Harbor Act of Jul 14, 1960.

Terminal facilities. There are 3 docks at Rochester Harbor. The City of Rochester owns an 830-foot long wharf at the entrance to the Genesee River. Three storage buildings at the terminal,

formerly used as transit sheds, have approximately 100,000 square feet of storage space. Approximately 3 acres of open storage area is located at the upper end of the facility. The facility has not been used for handling cargo for over 10 years. The U.S. Coast Guard moors search and rescue vessels at the mouth of the Genesee River. Another private facility is located 1.6 miles above the Stutson Street Bridge.

Operations and results during fiscal year.

Maintenance: Federal funds for real estate support were \$5,000; environmental activities cost \$120,796; project condition surveys cost \$35,000; and coastal mapping cost \$38,876.

21. ROCKY RIVER, OH

Location. At mouth of Rocky River which empties into Lake Erie seven miles westerly from Cleveland, OH. (See NOAA Nautical Chart 14826.)

Existing project. For description see pg. 1329 of Annual Report for 1966. Federal cost for completed project was \$343,494 and non-Federal cost was a cash contribution of \$249,346. (See Table 20-B for authorizing legislation.)

Local cooperation. Fully complied with. Local interests contributed \$249,346 for new work.

Terminal facilities. Facilities consist of private docks for recreational craft and privately owned servicing and storage handling facilities for recreational and other small craft.

Operations and results during fiscal year.

Maintenance: Federal funds for project condition surveys cost \$20,000 and environmental activities cost \$55,540.

22. SACKETS HARBOR, NY

Location. On south shore of Black River Bay at easterly end of Lake Ontario, about 41 miles northerly of Oswego, N.Y. (See NOAA Nautical Chart 14802.)

Previous project. For details see page 3160 of Annual Report for 1896 and page 2809 of Annual Report for 1898.

Existing project. For description see page 2456 of Annual Report for 1948. Actual cost for new work for completed portion of project was \$19,010. Deepening of the harbor area to project dimensions as authorized by 1945 Act, was deauthorized by Congress in May 1981. (See Table 32-B for authorizing legislation.)

Local cooperation. See page 2457 of 1948 Annual Report for details.

Terminal facilities. Facilities consist of private docks for recreational craft and privately owned

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servicing and storage handling facilities for recreational and other small craft.

Operations and results during fiscal year.

Maintenance: Federal funds for real estate support resulted in a credit of \$52.

23. SANDUSKY HARBOR, OH

Location. On south shore of Lake Erie, in southeastern portion of Sandusky Bay, 50 miles westerly from Cleveland, OH. (See NOAA Nautical Chart 14845.)

Previous project. For description see pgs. 1511-12 of Annual Report for 1962. Actual costs for new work for completed project were \$6,250,121, excluding \$325,000 contributed by local interests. Non-Federal costs for completed project are estimated at \$675,000, including \$325,000 cash contribution and the remaining \$350,000 is for dockside dredging adjacent to deepening channels authorized by 1960 Act. (See Table 20-B for authorizing legislation.)

Local cooperation. Fully complied with. Local interests contributed \$325,000 for new work.

Terminal facilities. Fourteen piers and wharves, three at west end of harbor and remainder along dock channel. One is a base for State-owned fish research and patrol boats. One publicly owned and six privately owned used for mooring fishing boats and recreational craft and for ferry service. Five terminals have railroad connections and five mechanical-handling facilities. Facilities are considered adequate for existing commerce. (See Port Series No. 42, revised 1972, Corps of Engineers.)

Operations and Results during FY.

Maintenance: Federal funds for project condition surveys cost \$60,000; real estate support cost \$58; and economic evaluation cost \$18,814. Dredging cost \$962,922 to remove approximately 239,891 cubic yards of shoaled material from the upper bay channel (Depth 25 ft.; width 150 ft.; length; 8,000 ft.)

24. STURGEON POINT, EVANS, NY

Location. On south shore of Lake Erie, 17 miles southwest of Buffalo, NY and 22 miles northeast of Dunkirk, NY. (See Geological Survey map of Angola, NY.)

Existing project. For description of existing project, see pg. 20-11 of Annual Report for 1991. Federal project cost is \$ 1,460,000. Non-Federal project cost is \$1,475,000. In addition, the local sponsor provided associated costs for upland development of \$1,000,000.

Local cooperation. The Buffalo District has a properly executed Local Cooperation Agreement with the Town of Evans, NY, signed Oct 26, 1987.

Operations and results during fiscal year.

Maintenance: Federal funds for sand by-pass reimbursement cost \$14,898.

25. TOLEDO HARBOR, OH

Location. Comprises lower seven miles of Maumee River and channel through Maumee Bay to Lake Erie. Maumee River has its source in northern Indiana and empties into Lake Erie. Harbor is at the westerly end of Lake Erie, 99 miles westerly from Cleveland, OH. (See NOAA Nautical Chart 14847.)

Previous projects. For details see pg. 1959 of Annual Report for 1915, and pg. 1565 of Annual Report for 1938.

Existing project. For description of existing project see pgs. 32-18 and 32-19 of Annual Report for 1978. Cost of completed existing project was \$15,567,147. (See Table 20-B for authorizing legislation.)

Local cooperation. Fully complied with.

Terminal facilities. Thirty-five piers, wharves and docks are located in the Port of Toledo. Seven are located on Maumee River; and 28 are equally divided along the right and left banks of the lower seven miles of the Maumee River. The Toledo-Lucas County Port Authority Facility No. 1 Wharf handles conventional and containerized general cargo as well as an increasing amount of miscellaneous bulk materials. Fifteen of the terminals have railroad connections and mechanical handling facilities. (See Port Series No. 44, revised 1989, U.S. Army Corps of Engineers.)

Operations and results during fiscal year.

Maintenance: Federal funds for project condition surveys cost \$115,000. Dredging cost \$568,377 to remove 1430,063 cubic yards of shoaled material from the Maumee Bay (Depth 29 ft.; width 500 ft.; length 1 mi.). \$1,642,714 was expended to remove 476,000 cubic yards of shoaled material from the Maumee River. (Depth 28ft.; width 400 ft.; length 2 mi.). Costs to continue the Long-Term Management Strategy (LTMS) were \$101,923. These costs included the cost of finalizing the Environmental Assessment for the LTMS recommendations, and finalization of the LTMS Phase 4 report. These costs included initiation of the plans and specifications for reutilization of Grassy Island, also known as Island 18.

26. TOUSSAINT RIVER, OH

Location. At westerly end of Lake Erie, 8 miles west of Port Clinton and 22 miles east of Toledo, Ohio. (See NOAA Nautical Chart 14847.)

Existing project. For description of existing project, pg 20-12 of Annual Report for 1991. (See Table 20-B for authorizing legislation.) Project is deferred due to discovery of unexploded ordnance in the dredging area.

Local cooperation. The Buffalo District has a properly executed Local Cooperation Agreement with Carroll Twnsp., OH, signed Apr 3, 1991.

Operations and results during fiscal year. Maintenance: Federal funds for project condition surveys cost \$20,000. Dredging cost \$104,549 to provide technical assistance to the local sponsor in an effort to minimize the amount of dredging required on a regular basis. This project is cost shared and the local sponsor was unable to provide their cost share until FY04. Dredging of the Toussaint River will start on March 19, 2004 and be completed by the end of March 2004.

27. VERMILION HARBOR, OH

Location. On south shore of Lake Erie at mouth of Vermilion River, 37 miles westerly from Cleveland, OH. (See NOAA Nautical Chart 14826.)

Existing project. For description of existing project see pgs. 32-17 and 32-18 of Annual Report for 1975. Actual Federal cost for the completed existing project was \$1,156,118. Estimated non-Federal cost for new work is \$754,679 including cash contribution of \$740,679 and remainder for relocation of submarine cable and construction of public wharf. (See Table 20-B for authorizing legislation.)

Local cooperation. Fully complied with. Local interests contributed \$740,679.

Terminal facilities. Facilities consist of private docks for recreational craft and privately owned servicing and storage handling facilities for recreational and other small craft. A reconnaissance study to alleviate the ice-jam and free-flow flooding of the river was completed in 1986 at a cost of \$180,000. The proposed project was an ice-retention structure. The non-Federal sponsor did not commit to provide its total share of the cost of the feasibility study; the project was therefore reclassified as "inactive".

Operations and results during fiscal year. Maintenance: Federal funds for environmental activities cost \$56,883; project condition surveys cost \$16,000. \$109,954 was expended to repair around the East Breakwater navigation light and rebuild 92

l.f. of the East Breakwater from the navigation light (channel side).

28. WEST HARBOR, OH

Location. On southwest shore of Lake Erie, 13 miles northeast of Port Clinton, OH. (See NOAA Nautical Chart 14847.)

Existing project. For description of existing project, see pg. 32-10 of Annual Report for 1983. Total Federal cost for new work was \$3,303,898. Total non-Federal cost for new work was \$3,922,000 including cash contribution of \$3,795,000. Existing project was authorized by 1965 River and Harbor Act (H. Doc. 245, 88th Cong., 2nd sess.).

Local cooperation. See pg. 32-20 of 1978 Annual Report for requirements of local cooperation. By letter dated Jan 31, 1978, State of OH stated its intent to furnish assurances of local cooperation, and executed LCA was received on Mar 9, 1981.

Terminal facilities. Commerce at the harbor presently consists of recreational boating and affiliated activities.

Operations and results during fiscal year. Maintenance: Federal funds for project condition surveys cost \$27,500.

29. WILSON HARBOR, NY

Location. At mouth of east branch of Twelve-Mile Creek, which enters Lake Ontario 12 miles easterly of mouth of Niagara River, and 67 miles westerly of Rochester Harbor, NY. (See NOAA Nautical Chart 14806.)

Previous projects. For details see pg. 2395 of Annual Report for 1889, and pg. 628 of Annual Report for 1905.

Existing project. For description of existing project see pg. 32-18 of Annual Report for 1975. Actual Federal cost for completed existing project was \$477,904. Estimated non-Federal costs are \$774,000 that includes cost of \$16,000 for previously completed work. Remainder of non-Federal costs is for work required for 1968 R&H Act including cash contribution of \$166,988. (See Table 20-B for authorizing legislation.)

Local cooperation. Fully complied with.

Terminal facilities. Facilities consist of private docks for recreational craft and privately owned servicing and storage handling facilities for recreational and other small craft. Facilities are considered adequate for existing commerce.

Operations and results during fiscal year. Maintenance: Federal funds for real estate support resulted in a credit of \$77. Project condition surveys cost \$8,975.

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30. RECONNAISSANCE AND CONDITION SURVEYS

Condition surveys performed by the Buffalo District cost \$68,381.

<u>Project</u>	<u>Date of Survey</u>
Port Clinton, OH	Nov 2002
Cooley Canal, OH	Jul 2003
Cattaraugus Creek, NY	Dec, Jan 2002
Port Ontario, NY	Dec, Jan 2002
Oak Orchard, NY	Dec, Jan 2002
Olcott Harbor, NY	Dec, Jan 2002
Irondequoit, NY	Dec, Jan 2002
Great Sodus, NY	Dec, Jan 2002
Little Sodus, NY	Dec, Jan 2002
Niagara River, NY	Dec, Jan 2002

NAVIGATION WORK UNDER SPECIAL AUTHORIZATION

31. NEW YORK STATE CANAL SYSTEM

Location. The New York State Canal System runs primarily east west through New York State. It consists of 4 components: Erie Canal, Oswego Canal, Cayuga/Seneca Canal, and Champlain Canal.

Existing Project. Reimburse the State of New York 50% of non-Federal operation, maintenance and rehabilitation costs as well as make capital improvements. Sec. 1105, WRDA 1986 and Sec. 553, WRDA 1996 and Sec 341, WRDA 1999 authorized the existing project.

Local Cooperation. Fully complied with.

Terminal Facilities. Numerous piers, wharves and locks used for recreational craft.

Operations and Results during FY. New work Funds in the amount of \$408,208 were expended to prepare a Decision Document and reimburse the state of NY for a completed project.

SHORE PROTECTION

32. PRESQUE ISLE PENINSULA, ERIE, PA

Location. At Erie, PA, on south shore of Lake Erie, 78 miles southwest of Buffalo, NY and 102 miles east-northeast of Cleveland, OH. (See NOAA Nautical Charts 14824 and 14835.)

Existing Project. For description of completed portion of existing project see pg. 1393 of Annual Report for 1963. For details of project authorized by the 1974 Water Resources Development Act (WRDA), 1976 WRDA and 1986 WRDA, see pg. 32-14 of Annual Report for FY 87. Actual Federal cost for the authorized beach nourishment project

modifications through FY 92 is \$16,879,000 which includes \$5,646,000 for completed work authorized by the 1954 and 1960 R&H Acts and 1974 WRDA Act and \$11,233,000 for completed work authorized by the 1976 WRDA Act. Actual non-Federal cost for the authorized project and modifications through FY 92 is \$8,798,000 which includes \$3,983,000 for completed work authorized by 1954 and 1960 R&H Acts and 1974 WRDA Act and \$4,815,000 for completed work authorized by the 1976 WRDA Act. Beach nourishment as authorized by the 1976 WRDA was completed in FY 91. The estimated Federal cost (Oct 1999) for the 55 breakwaters project is \$66,335,000. This estimate includes \$13,435,000 for the initial construction and \$52,900,000 for 50 years of post-construction beach nourishment. The estimated non-Federal cost for the breakwater project is also \$66,335,000. The estimated Federal cost (June 2003) for the 55 breakwaters project is \$56,310,000. This estimate includes \$13,435,000 for the initial construction and \$42,875,000 for 50 years of post-construction beach nourishment. The estimated non-Federal cost for the breakwater project is also \$56,310,000. (See Table 20-B for authorizing legislation.)

Local Cooperation. Fully complied with for completed project as authorized by 1954 and 1960 R&H Acts and 1974 WRDA Act. An agreement between the United States of America and the Commonwealth of PA, acting through the Department of Environmental Resources was entered into on Feb 21, 1979 for the annual nourishment which was extended by the 1976 WRDA Act.

Operations and Results during FY. New work: Annual nourishment for a 50 year period, beginning in FY 93, continued in FY 03 for the eleventh year of this 50-year period. Federal expenditures were \$384,773 for the nourishment contract, and \$46,374 for contract supervision and administration. Non-Federal costs were \$381,108 for the nourishment contract, \$39,081 for contract supervision and administration; \$250,000 for the North Pier modification construction contract.

FLOOD CONTROL

33. MT. MORRIS LAKE, GENESEE RIVER, NY

Location. Dam is on Genesee River 66.9 miles above river mouth and about 32 miles southwesterly of Rochester, NY. Reservoir is in Livingston and Wyoming Counties, NY. (See Ecological Survey maps of Nunda and Portage, NY).

Existing Project. For description of existing project, as authorized by 1944 Flood Control Act, see pg. 1575 of Annual Report for 1962. New work for completed project cost \$23,365,559. In addition, \$5,000 contributed funds were expended for new work.

Local Cooperation. None required. Local interests contributed \$5,000 for new work.

Operations and Results during FY.

Maintenance: Federal funds for the operation of the dam, reservoir and service facilities, real estate support and miscellaneous reports were accomplished by hired labor at a cost of \$966,914. Flood emergency plans cost \$95,630; water control management cost \$374,150 and \$42,824 for dam safety. Operation and maintenance costs for the visitor center and recreation facilities were \$302,613; debris removal cost \$162,013. Costs for road repairs were \$484,180.

URBAN STORM WATER MANAGEMENT

34. ONONDAGA STORM WATER DISCHARGE, NY

Location. Onondaga Lake is located in Central NY State, northwest of the City of Syracuse, within the Oswego River Basin, which is tributary to Lake Ontario. It is also part of the NY State Barge Canal System. (See Geological Survey map of Syracuse, NY.)

Existing Project. Existing project is authorized under Section 307 of the Waters Resources Development Act of 1992 (PL 102-580) and will demonstrate the effectiveness of using swirl concentrator system technology for combined Sewer Overflow abatement at Hiawatha Boulevard to improve water quality in Onondaga Lake. The project has three separate components: interceptor sewers; a treatment and storage facility; and out fall pipe and force main which will be designed and constructed by others. Federal cost will be \$3,406,000. Non-Federal cost is estimated to be \$3,786,000.

Local Cooperation. The project will be cost-shared 75% Federal, 25% non-Federal up to the maximum Federal contribution (\$4,000,000).

Operations and Results during FY. New work: Federal costs for FY 03 were \$1,998,932. Non-federal costs were \$433,259.

MISCELLANEOUS

35. CATASTROPHIC DISASTER PREPAREDNESS PROGRAM (CDPP)

Local Preparedness.....	\$15,639
National Emergency Facilities.....	13,143
National Preparedness.....	4,577
Training and Exercise Task Force.....	47
Total CDPP.....	\$33,406

36. ANTI-TERRORISM/FORCE PROTECTION

Anti-terrorism/Force Protection.....	\$176,851
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37. REGULATORY FUNCTIONS PROGRAM

Permit Evaluation.....	\$2,786,091
Enforcement.....	918,577
Administrative Appeals.....	2,451
Total Regulatory.....	\$3,707,119

38. FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM (FUSRAP)

Buffalo District began work in FUSRAP in October 1997 when Congress transferred this Program from the Department of Energy (DOE) to the Corps. Eight sites were assigned at that time. Total FUSRAP expenditures for FY03 were \$42,942,642. The FY03 accomplishments for these sites are briefly stated in the following paragraphs:

Niagara Falls Storage Site, Lewiston, NY – The Remedial Investigation (RI) and Feasibility Study (FS) continued and on-going site maintenance, monitoring and surveillance were accomplished. The Gamma Walkover and Geophysical Report and the Technical Project Planning meeting to determine FS alternatives were completed. Total FY 2003 expenditures were \$5,328,603.

Ashland 1, Tonawanda, NY – The remedial action at the Ashland 1/Seaway D area was completed (2933 tons in FY03) and 90% of the site backfilling and restoration was completed. Work plans for the Rattlesnake Creek portion of the site were initiated. Total FY 2003 expenditures were \$7,130,914.

Ashland 2, Tonawanda, NY – The remediation of this site was completed in 1999 and the only work accomplished in FY03 was assembling of cost recovery records. Total FY 2003 expenditures were \$22,527.

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Praxair (Linde Air Products, Tonawanda, NY) – The Linde site has three operable units: Soils; Building 14; and Groundwater. The Soils remedial action continued with 43,000 tons removed and disposed of off-site and backfill placement amounted to 73,000 tons. The Record of Decision was executed for building 14 and the real estate interests acquired. Work continued on the Feasibility Study Amendment for the groundwater. Total FY 2003 expenditures were \$24,900,341.

Seaway Industrial Park, Tonawanda, NY – Work continued on the Feasibility Study Report, and the land use control requirements were identified. Total FY 2003 expenditures were \$414,981.

Luckey Site, Luckey, OH – The Feasibility Study was completed, and the Proposed Plan prepared, released and a Public Meeting held. Total FY 2003 expenditures were \$478,960.

Painesville Site, Painesville, OH – The Remedial Investigation/Feasibility Study was completed and the Proposed Plan was coordinated with stakeholders. Total FY 2003 expenditures were \$372,128.

Former Harshaw Chemical Co., Cleveland, OH – The Remedial Investigation continued with Phase 1 of the fieldwork completed and Phase 2 initiated.

Scioto Laboratory Complex, Marion, OH – The draft Preliminary Assessment was completed and coordinated internally. FY 2003 expenditures were \$35,206.

Dayton Unit 1, Dayton OH – The Preliminary Assessment / Site Inspection was completed and coordinated with stakeholders. FY 2003 expenditures were \$70,077.

Old Warehouse, Dayton, OH – Efforts continued to obtain Rights of Entry so that the fieldwork can be conducted here leading toward an SI Report. FY 2003 expenditures were \$36,723.

Former Guterl Specialty Steel Corp., Lockport, NY – The coordination continued to determine whether or not to add this site into the Program. Total FY 2003 expenditures were \$10,135.

Dayton Unit III, Dayton, OH – The fieldwork and testing were completed and the Draft Site Inspection Reports were prepared. Total FY 2003 expenditures were \$68,077.

Dayton Unit IV, Oakwood, OH – The fieldwork and testing were completed and the Draft Site Inspection Reports were prepared. Total FY 2003 expenditures were \$68,032.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 20-A COST AND FINANCIAL STATEMENT

See Sect. In Text	Project	Funding	FY 00	FY 01	FY 02	FY03	Total Cost to Sep 30, 2003
NAVIGATION							
1. Ashtabula Harbor, OH	New Work Approp.						12,805,339 ¹
	New Work Cost						12,805,339 ¹
	Maint. Approp.	654,643	1,643,341	2,637,676	1,804,884		24,423,460
	Maint. Cost	654,441	1,635,336	2,599,191	1,858,631		24,423,463
	Rehab. Approp.						6,077,000
	Rehab. Cost						6,077,000
(Contributed Funds)	New Work Contrib.				175,000		175,000
	New Work Cost				128,349		128,349
2. Black Rock Channel Tonawanda Harbor, NY	New Work Approp.						11,135,120 ²
	New Work Cost						11,135,120 ²
	Maint. Approp.	1,908,300	1,780,439	3,538,316	1,931,314		73,173,517 ³
	Maint. Cost	1,906,871	1,783,978	3,534,834	1,950,390		73,168,444 ³
(Contributed Funds)	New Work Contrib.						620,000
	New Work Cost						620,000
3. Buffalo Harbor, NY	New Work Approp.						23,115,187 ⁴
	New Work Cost						23,115,187 ⁴
	Maint. Approp.	662,363	312,938	111,730	1,048,040		68,414,046 ⁵
	Maint. Cost	654,623	320,444	112,451	1,048,058		67,365,989 ⁵
	Rehab. Approp.						295,457
	Rehab. Cost.						295,457
4. Buffalo Harbor, NY, Environmental Dredging	Maint. Approp.	24,375	(170)	22,964	14,209		172,004
	Maint. Cost	26,221	67	22,928	14,244		172,002
5. Cleveland Harbor, OH	New Work Approp.						36,550,299 ⁶
	New Work Cost						36,550,299 ⁶
	Maint. Approp.	5,686,707	7,974,969	4,337,409	3,437,174		230,757,499 ⁷
	Maint. Cost	5,733,286	7,966,353	4,361,881	3,434,931		230,752,420 ⁷
	Rehab. Approp.						16,404,903

¹ Includes \$565 for previous projects. Excludes \$47,000 contributed funds.

² Includes \$58,027 for previous projects.

³ Includes \$4,922 emergency relief authority administrative costs transferred for new work to maintenance upon conversion to programming & budgeting system Jul 1, 1953 by direction of Office, Chief of Engineers. Also includes appropriations & cost under appropriation titles 96X3123 Operations and Maintenance & 96X5125 Maintenance and Operation of Dams and Other Improvements of Navigable Waters.

⁴ Includes \$4,277,586 for previous projects. Excludes expenditures of \$239,305 for work authorized by Sec. 107.

⁵ Includes \$1,883,647 for previous projects. Excludes \$446,805 contributed funds.

⁶ Includes \$1,564,154 for previous projects. & appropriation & cost of \$16,596 for modification authorized for construction under authority of Sec. 107, 1960 R&H Act.

⁷ Includes appropriations & cost under appropriation titles 96X3123 Operations and Maintenance & 96X5125 Maintenance and Operations of Dams and Other Improvements of Navigable Waters. Excludes \$201,960 contributed funds.

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TABLE 20-A COST AND FINANCIAL STATEMENT

See Sect. In Text	Project	Funding	FY 00	FY 01	FY 02	FY03	Total Cost to Sep 30, 2003
		Rehab. Cost					16,404,903
	(Contributed Funds)	New Work Contrib.					1,083,178
		New Work Cost					1,083,178
		Maint. Contrib.					7,750,725
		Maint. Cost	23,649	1,414	6,725		7,660,723
6. Conneaut Harbor, OH		New Work Approp.					8,346,641 ⁸
		New Work Cost					8,346,641 ⁸
		Maint. Approp.	570,235	25,500	24,563	524,100	16,311,043 ⁹
		Maint. Cost	570,177	25,595	24,511	524,152	16,311,045 ⁹
		Rehab. Approp.					651,850
		Rehab. Cost					651,850
7. Dunkirk Harbor, NY		New Work Approp.					3,010,024 ¹⁰
		New Work Cost					3,010,024 ¹⁰
		Maint. Approp.	413,202	257,226	332,493	335,392	6,378,486
		Maint. Cost	412,640	257,788	328,361	339,524	6,378,485
		Rehab. Approp.					1,950,000 ¹¹
		Rehab. Cost					1,950,000 ¹¹
8. Erie Harbor, PA		New Work Approp.					3,597,873 ¹²
		New Work Cost					3,597,873 ¹²
		Maint. Approp.	110,122	145,377	43,907	131,016	24,068,959 ¹³
		Maint. Cost	109,828	146,524	43,965	131,110	24,068,958 ¹³
		Rehab. Approp.					1,154
		Rehab. Cost					1,154
9. Fairport Harbor, NY		New Work Approp.					2,959,611 ¹⁴
		New Work Cost					2,959,611 ¹⁴
		Maint. Approp.	1,619,655	1,651,213	1,685,743	1,477,466	27,756,837
		Maint. Cost	1,616,193	1,659,137	1,685,739	1,478,384	27,756,837
10. Great Sodus Bay Harbor, NY		New Work Approp.					
		New Work Cost					
		Maint. Approp.	265,964	7,235	32,282	64,704	3,276,292
		Maint. Cost	265,879	7,320	32,251	64,735	3,276,292
		Rehab. Approp.					
		Rehab. Cost					

⁸ Includes \$805,272 for previous projects.

⁹ Includes \$39,784 for previous projects.

¹⁰ Includes \$811,250 for previous projects. Excludes \$11,000 contributed funds.

¹¹ Includes \$176,520 for previous projects.

¹² Includes \$736,967 for previous projects.

¹³ Includes \$104,900 for previous projects. Excludes \$154,500 contributed funds.

¹⁴ Includes \$368,940 for previous projects.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 20-A COST AND FINANCIAL STATEMENT

See Sect. In Text	Project	Funding	FY 00	FY 01	FY 02	FY03	Total Cost to Sep 30, 2003
11. Huron Harbor, OH	New Work Approp.						5,103,795 ¹⁵
	New Work Cost						5,103,795 ¹⁵
	Maint. Approp.	655,338	57,723	918,922	920,870		25,388,077
	Maint. Cost	650,557	62,804	918,895	920,898		25,388,077
	Rehab. Approp.						247,030
	Rehab. Cost						247,030
	(Contributed Funds)						
	New Work Approp.						63,079
	New Work Cost						63,079
12. Little Sodus Bay Harbor, NY	New Work Approp.						301,394 ¹⁶
	New Work Cost						301,394 ¹⁶
	Maint. Approp.			35,488	64,080		5,690,011
	Maint. Cost			34,672	64,895		5,690,010
	Rehab. Approp.						742,822
	Rehab. Cost						742,822
13. Lorain Harbor, OH	New Work Approp.						22,240,670 ¹⁷
	New Work Cost						22,240,670 ¹⁷
	Maint. Approp.	1,211,476	1,261,238	1,404,953	3,793,549		46,094,495
	Maint. Cost	1,208,239	1,261,644	1,411,601	3,790,948		46,091,867
	(Contributed Funds)						
	New Work Contrib.						845,551
	New Work Cost						845,551
31. New York State Canal System, NY	New Work Approp	3,355,000			408,000		7,563,000
	New Work Cost	3,359,703			408,208		7,562,940
14. Oak Orchard, NY	New Work Approp.						1,586,996 ¹⁸
	New Work Cost						1,586,996 ¹⁸
	Maint. Approp.	152,932	60,861	1,000	29,807		825,497
	Maint. Cost	151,782	62,012	1,000	29,807		825,498
15. Olcott Harbor, NY	New Work Approp.						2,025,210 ¹⁹
	New Work Cost						1,754,694 ¹⁹
	Maint. Approp.			5	4,957		691,604 ²⁰
	Maint. Cost			5	4,957		699,735 ²⁰
	Rehab. Approp.						14,447 ²¹

¹⁵ Includes \$269,789 for previous projects.

¹⁶ Includes \$232,328 for previous projects.

¹⁷ Includes \$292,203 for new work for previous projects. Excludes \$3,000 contributed funds. Also excludes appropriation and cost of 29,570 under authority of Sec. 197, 1960 R&H Act.

¹⁸ Excludes \$224,702 contributed funds.

¹⁹ Includes \$140,210 for previous projects. Excludes \$1,500 contributed funds.

²⁰ Includes \$38,959 for previous projects. Excludes \$5,000 contributed funds.

²¹ Excludes \$186,000 Public Works Acceleration Act.

BUFFALO, NY DISTRICT

TABLE 20-A COST AND FINANCIAL STATEMENT

See Sect. In Text	Project	Funding	FY 00	FY 01	FY 02	FY03	Total Cost to Sep 30, 2003
		Rehab. Cost					14,477 ²¹
16. Oswego Harbor, NY	New Work Approp.						8,430,016 ²²
	New Work Cost						8,430,016 ²²
	Maint. Approp.	837,377	969,387	33,980	145,910		11,184,770 ²³
	Maint. Cost	892,145	972,172	34,092	145,926		11,184,769 ²³
	Rehab. Approp.						307,590
	Rehab. Cost						307,590
17. Ottawa River Harbor, MI & OH	New Work Approp.					148,000	490,000
	New Work Cost					116,691	390,648
18. Port Clinton, OH	New Work Approp.						-
	New Work Cost						-
	Maint. Approp.		27,828	84,416	9,878		1,194,076
	Maint. Cost		27,828	84,542	9,899		1,194,223
	Rehab Approp.						-
	Rehab Cost						-
19. Port Ontario, NY	New Work Approp.						2,369,621 ²⁴
	New Work Cost						2,368,989 ²⁴
	Maint. Approp.				1,000	(26)	34,235
	Maint. Cost				1,000	(26)	34,235
(Contributed Funds)	New Work Contrib.						1,361,335
	New Work Cost						1,361,335
20. Rochester Harbor, NY	New Work Approp.						2,439,308 ²⁵
	New Work Cost						2,439,308 ²⁵
	Maint. Approp.	23,578	698,445	38,847	198,900		25,442,409
	Maint. Cost	23,878	698,436	38,302	199,672		25,442,388
	Rehab. Approp.						-
	Rehab. Cost						-
21. Rocky River, OH	New Work Approp.						343,494
	New Work Cost						343,494
	Maint. Approp.	201,954	1,250,731	(3,847)	76,207		5,204,960
	Maint. Cost	196,597	1,241,236	11,033	75,540		5,189,413
22. Sackets Harbor, NY	New Work Approp.						25,010 ²⁶
	New Work Cost						25,010 ²⁶

²² Includes \$1,187,977 for previous projects.

²³ Includes \$945,684 for previous projects.

²⁴ Includes \$50,000 for previous projects.

²⁵ Includes \$247,794 for previous projects.

²⁶ Includes \$271,380 for previous projects.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 20-A COST AND FINANCIAL STATEMENT

See Sect. In Text	Project	Funding	FY 00	FY 01	FY 02	FY03	Total Cost to Sep 30, 2003
		Maint. Approp.			10,000	(52)	33,587
		Maint. Cost			10,000	(52)	33,587
23. Sandusky Harbor, OH	New Work Approp.						6,727,270 ²⁷
	New Work Cost						6,727,270 ²⁷
	Maint. Approp.	1,009,650	641,476	102,049	1,040,998		26,284,507
	Maint. Cost	959,348	691,909	101,317	1,041,183		26,283,899
	Rehab. Approp.						675,606
	Rehab. Cost						675,606
(Contributed Funds)	Maint. Contrib.						15,445
	Maint. Cost						15,445
24. Sturgeon Point, NY	New Work Approp.						1,718,700 ²⁸
	New Work Cost						1,718,140 ²⁸
	Maint. Approp.	21,685	21,284	8,072	14,898		153,418
	Maint. Cost	21,835	21,284	8,072	14,898		153,416
(Contributed Funds)	New Work Contrib.						1,299,008
	New Work Cost						1,299,008
25. Toledo Harbor, OH	New Work Approp.						17,191,842 ²⁹
	New Work Cost						17,191,842 ²⁹
	Maint. Approp.	2,770,943	2,819,520	3,230,052	2,847,709		134,766,710
	Maint. Cost	2,734,301	2,829,309	3,259,950	2,849,841		131,766,709
26. Toussaint River, OH	Maint. Approp.	141,957	254,149	14,993	125,549		940,342
	Maint. Cost	142,431	226,245	42,897	125,549		967,340
(Contributed Funds)	Maint. Contrib.	15,000	49,811				189,811
	Maint. Cost	52,772	59,413				189,810
27. Vermilion Harbor, OH	New Work Approp.						1,156,118 ³⁰
	New Work Cost						1,156,118 ³⁰
	Maint. Approp.	431,875	384,267	22,120	182,440		3,865,941
	Maint. Cost	430,738	385,404	21,723	182,837		3,865,941
	Rehab. Approp.						139,775
	Rehab. Cost						139,775
28. West Harbor, OH	New Work Approp.						3,303,898
	New Work Cost				(35)		3,303,863
	Maint. Approp.		51,311	5,374	27,422		2,069,984

²⁷ Includes \$477,149 for previous projects. Excludes \$325,000 contributed funds.

²⁸ Excludes \$5,000 contributed funds.

²⁹ Includes \$1,624,695 for previous projects

³⁰ Excludes \$740,679 contributed funds.

BUFFALO, NY DISTRICT

TABLE 20-A COST AND FINANCIAL STATEMENT

See Sect. In Text	Project	Funding	FY 00	FY 01	FY 02	FY03	Total Cost to Sep 30, 2003
		Maint. Cost		51,311	5,296	27,500	2,069,984
	(Contributed Funds)	New Work Contrib.					3,795,000
		New Work Cost					3,795,000
29. Wilson Harbor, NY		New Work Approp.					535,246 ³¹
		New Work Cost					535,246 ³¹
		Maint. Approp.	195,068	17,593	10,000	8,898	1,193,651
		Maint. Cost	194,378	18,283	10,000	8,898	1,193,651
SHORE PROTECTION							
32. Presque Isle Peninsula, Erie, PA		New Work Approp.	357,000	486,000	612,000	717,000	36,059,049
		New Work Cost	379,725	513,790	622,366	681,147	36,020,972
		Maint. Approp.					4,978
		Maint. Cost					4,978
	(Contributed Funds)	New Work Contrib.	520,000	580,000	290,500	830,000	26,910,369
		New Work Cost	303,080	518,659	573,394	670,189	26,079,040
FLOOD CONTROL							
33. Mount Morris Lake, Genesee River, NY		New Work Approp.					23,365,559 ³²
		New Work Cost					23,365,559 ³²
		Maint. Approp.	2,577,432	1,776,256	1,943,573	2,452,977	40,699,866
		Maint Cost	2,540,550	1,754,897	2,010,926	2,428,324	40,643,795
34. Onondaga Storm Water Discharge, NY		New Work Approp.	264,256	4,190,000	801,000	1,903,500	10,305,562
		New Work Cost	1,064,543	560,600	623,108	1,998,932	6,792,039
	(Contributed Funds)	New Work Contrib.	50,000	(54,023)	641,050	725,945	5,054,472
		New Work Cost	1,478,178	129,876	37,437	433,259	4,111,056

³¹ Includes \$57,342 for previous projects. Excludes \$166,998 contributed funds.

³² Includes study cost of \$117,000 under authority Sec 205, 1948 Flood Control Act. Excludes \$17,493 in contributed cost.

Table 20-B AUTHORIZING LEGISLATION

<u>See Section</u>	<u>Acts</u>	<u>Work Authorized</u>	<u>Documents</u>
1		ASHTABULA HARBOR, OH	
	Jun 3, 1896	Construction of breakwater.	Annual Report, 1895, p. 2132
	Mar 3, 1905 Jun 25, 1910	Enlarge outer harbor by extending west breakwater and constructing new east breakwater pier heads on lakeward ends of breakwaters; remove part of old east breakwater.	H. Doc. 654, 61st Cong., 2nd sess.
	Mar 2, 1919	Extend west breakwater to shore; dredge outer harbor to a depth of 20 feet.	H. Doc. 997, 64th Cong., 1st sess.
	Aug 30, 1935	Remove portion of east breakwater to extend breakwaters to present dimensions and dredging restrictions in portion of west basin.	H. Doc. 43, 73rd Cong., 1st sess.
	Aug 26, 1937	Dredge channel through outer harbor, channel of approach to Penn Central Co. slip, channel Ashtabula River, to and in turning basin all to present project dimensions; remove portion of old east inner breakwater and Maintenance to 24-foot depth of portion of outer harbor.	Rivers and Harbors Committee Doc. 78, 74th Cong., 2nd sess.
	Mar 2, 1945	Extend river channel to present project limit.	H. Doc. 321, 77th Cong., 1st sess.
	Sep 3, 1954	Dredging approach channel and turning basin in east outer harbor to 25-foot depth.	H. Doc. 486, 83rd Cong., 2nd sess.
	Jul 14, 1960	A depth of 29 feet in soft and 30 feet in hard material in entrance channel to just inside outer ends of Breakwaters, thence 28 feet in soft and 29 feet in hard material in a channel to inner breakwater, thence 27 feet in soft and 28 feet in hard materials in a channel extending to Penn Central Co. slip and extending 2000 feet up Ashtabula River, 22 feet in hard material in turning area; and 28 feet in soft and 29 feet in hard material in areas adjacent to 250-foot section of inner breakwater when that section is removed as now authorized.	H. Doc. 148, 86th Cong., 1st sess.
	Oct 27, 1965	Dredging approach channel and turning basin in east outer harbor to 28 feet in soft material and 29 feet in hard material.	H. Doc. 269, 89th Cong., 1st sess. ³³
2		BLACK ROCK CHANNEL AND TONAWANDA HARBOR, NY	
	Aug 11, 1888 Jun 3, 1896	Dredging channel through horseshoe reef at outlet of Lake Erie and Tonawanda Inner Harbor to 16 feet.	H. Ex. Doc. 83, 50 th Cong., 1 st sess., Annual Report. 1888, p. 206 and Annual Report, 1897., pp.3116-3120
	Jun 13, 1902	Deepening Tonawanda Creek to 16 feet.	H. Doc. 143, 56th Cong., 1st sess. and Annual Report, 1900 p. 4152

³³ Contains latest published map.

BUFFALO, NY DISTRICT

Table 20-B AUTHORIZING LEGISLATION

<u>See Section</u>	<u>Acts</u>	<u>Work Authorized</u>	<u>Documents</u>
	Jun 13, 1902 Aug 8, 1917	Dredging channel from Buffalo outer harbor to foot of Maryland St., Buffalo, to 21 feet.	H. Doc. 125, 56th Cong., 2nd sess., and Annual Report 1901, p. 3343
	Mar 3, 1905	Dredging channel from foot of Maryland St., Buffalo, to natural deep water pool upstream from Tonawanda Harbor to 21 feet; construction of ship lock and bridge; and repair of Bird Island pier towpath wall.	H. Doc. 428, 58th Cong., 2nd sess.
	Jul 27, 1916	Dredging channel along Tonawanda Island, with turning basin at its downstream end at the foot of the Island, to 21 feet.	H. Doc. 658, 63rd Cong., 2nd sess.
	Mar 2, 1919 Mar 2, 1945	Dredging triangular area at junction with Buffalo north Entrance channel.	H. Doc. 1004, 65th Cong., 2nd sess. & H. Doc. 92, 79th Cong., 1st sess. H. Doc. 981, 66th Cong., 2nd sess.
	Sep 22, 1922	Widening channel at foot of Maryland St., Buffalo.	H. Doc. 289, 68th Cong., 1st sess.
	Mar 3, 1925	Widening canal south of International Bridge and removal of westerly end of Rattlesnake Island shoal.	H. Doc. 981, 66 th Cong., 3d sess.
	Jun 26, 1934 ³⁴	Operation and care of improvements provided for with funds from War Department appropriations for rivers and harbors.	H Doc. 28, 73d Cong., 1 st sess.
	Aug 30, 1935 ³⁵	Removal of rock shoals in Lake Erie entrance to canal, and in canal south of Ferry Street Bridge, to 22 feet; enlargement of North Tonawanda turning basin; extension of Bird Island Pier; improvement of guide pier at the lock; and elimination of upper 150 feet of Tonawanda Creek channel from the project. ³⁶	H. Doc. 28, 73rd Cong., 1st sess.
	Mar 2, 1945	Widening Lake Erie entrance to canal.	H. Doc. 92, 79th Cong., 1st sess. ³³
	Sep 3, 1954	Deepen lower 1,500 feet of Tonawanda inner harbor and enlarge turning basin.	H. Doc. 423, 83rd Cong., 2nd sess. ³³ ³⁷
3	BUFFALO HARBOR, NY		
	May 20, 1826	Construction of south pier (extended in 1868). ³⁸	Annual Report, 1868, pp. 222 -232
	Jun 23, 1866	Construction of old breakwater. ³⁸	Annual Report, 1868, pp. 232 -236
	Jun 23, 1874	Extension of old breakwater. ³⁸	Annual Report, 1876, pt. 2, pp. 569 and 573
	Jun 3, 1896	Stony Point and south breakwater ³⁸	Annual Report, 1895, p. 3153. H. Doc. 72, 55th Cong., 1st sess., and Annual Report, 1897, p. 3245

³⁴ Permanent Appropriations Repeal Act.

³⁵ Authorized May 28, 1935 by Emergency Relief Administration Act of 1935.

³⁶ Improvement of guide pier at Black Rock Lock was de-authorized by Congress in Aug 1977.

³⁷ Classified deferred.

³⁸ Completed under previous projects.

Table 20-B AUTHORIZING LEGISLATION

<u>See Section</u>	<u>Acts</u>	<u>Work Authorized</u>	<u>Documents</u>
	Mar 3, 1899 North breakwater. ³⁸ Mar 3, 1909		
	Jun 6, 1900 Deepening entrance channel to inner harbor and removing Jun 18, 1902 rock shoal therein.		Specified in acts.
	Mar 2, 1907 ³⁹ Dredging at entrance to canals at South Buffalo in outer harbor. ³⁸		Specified in act.
	Mar 2, 1907 South entrance breakwater. ³⁸		H. Doc. 240, 59th Cong., 1st sess.
	Jun 25, 1910 Extension of Federal project to Commercial St. and removal of Watson elevator site.		H. Doc. 298, Rivers and Harbors Committee Doc. 2, 61st Cong., 2nd sess.
	Jul 25, 1912 Deepening areas A, B, D, in outer harbor to 21 feet, C in north entrance to 23 feet.		H. Doc. 550, 62nd Cong., 2nd sess.
	Mar 2, 1919 Deepening areas F and G in outer harbor to 21 feet.		H. Doc. 1139, 64th Cong., 1st sess.
	Jan 21, 1927 Removal of shoal between entrance channel to Buffalo River and Erie Basin to 21 feet.		H.Doc. 481, 68th Cong., 2nd sess.
	Jul 3, 1930 Deepening areas H, I, and K in outer harbor 21 feet.		Rivers and Harbors Committee Doc. 1, 71st Cong., 1st sess.
	Aug 30, 1935 ⁴⁰ Extension of south entrance and south breakwaters, deepening outer harbor to present project dimensions, and removal of shoals on approach to south entrance.		H. Doc. 46, 73rd Cong., 1st sess.
	Aug 30, 1935 Maintenance of channels in Buffalo River and Buffalo ship Mar 2, 1945 ⁴⁰ canal to 21 feet in cooperation with City of Buffalo.		Rivers and Harbors Committee Doc. 54, 74th Cong., 1st sess.
	Jul 14, 1960 Deepening North and Buffalo River entrance channels, and deepening and maintaining Buffalo River and Buffalo ship canal to present project dimensions.		H. Doc. 352, 78th Cong., 1st sess.
	Oct 23, 1962 Deepening approach to south entrance channels, and deepen to 30 feet in outer area and 29 feet in inner area of southerly part of outer harbor.		H. Doc. 151, 86th Cong., 1st sess.
	Deepening portion of outer harbor to 27 feet over a width of 500 feet for 2,500 feet northward from 28-foot project area, widening within 1,700 feet to limits within 150 feet of breakwater axis and 75 feet from harbor line and continuing within these limits for 7,000 feet. Elimination of 25-foot wide strip between presently		H. Doc. 451, 87th Cong., 2nd sess.

³⁹ Also Sundry Civil Act of Mar 3, 1905⁴⁰ Authorized in part by Public Works Administration, Sep 6, 1933.

BUFFALO, NY DISTRICT

Table 20-B AUTHORIZING LEGISLATION

<u>See Section</u>	<u>Acts</u>	<u>Work Authorized</u>	<u>Documents</u>
		7,000 feet. Elimination of 25-foot wide strip between presently authorized and proposed easterly dredging limits easterly 50 foot wide undredged strip in existing 23-foot depth project area, extending northerly from 27-foot depth to Buffalo River entrance channel. Previously authorized but uncompleted portions or work authorized by 1935 Act, combined within this act as a single improvement.	
	Jul 14, 1960 As amended	Removal of abandoned abutments of South Michigan Bridge.	Sec. 107, PL 86-645. Authorized Chief of Engineers Dec 15, 1980
4		BUFFALO HARBOR, NY ENVIRONMENTAL DREDGING	
	Nov 28, 1990	The Secretary may remove, as part of operation and maintenance of a navigation project, contaminated sediments outside the boundaries of and adjacent to the navigation channel. The Secretary may remove contaminated sediments from the waters of the United States, in general, for the purpose of environmental enhancement and water quality improvement if such removal is requested by a non-Federal sponsor and the sponsor agrees to pay 50% of the cost of the removal.	PL 101-640
	Oct 12, 1996 As priority work.	Amended PL 101-640 to include Buffalo Harbor, NY	PL 104-303
5		CLEVELAND HARBOR, OH	
	Mar 3, 1875	West breakwater.	Annual Report, 1876, p. 558
	Aug 5, 1886	Part of east breakwater. ³⁸	H. Ex. Doc. 116, 48th Cong., 2nd Sess., and Annual Report, 1886, p. 1865
	Aug 11, 1888	Extension of east breakwater.	H. Ex. Doc. 189, 50th Cong., 2nd sess., and Annual Report, 1888, p. 2005
	Jun 3, 1896	Reconstruction of piers. ³⁸	H. Doc. 326, 54th Cong., 1st sess., and Annual Report, 1896, p. 2949
	Mar 3, 1899	Dredging channel between piers and outer harbor to depth of 19 feet; dredging to depth of 23 feet in any portion of harbor is discretion of Secretary of War.	H. Doc. 156, 55th Cong., 2nd sess., and Annual Report, 1899, pp. 3075 and 3078
	Jun 13, 1902	Arrowhead breakwater and extension of east breakwater.	H. Doc 118, 56th Cong., 2nd sess.
	Mar 2, 1907 Jun 25, 1910	Removal of deflecting arm of old east breakwater and closure of gap between old and new east breakwaters.	No printed report.
	Jul 27, 1916	Pierhead at easterly end of east breakwater.	H. Doc 891, 63rd Cong., 2nd sess.
	Aug 8, 1917	Maintenance and improvement of channels in Cuyahoga	H. Doc. 707, 63rd Cong., 2nd sess.,

Table 20-B AUTHORIZING LEGISLATION

<u>See Section</u>	<u>Acts</u>	<u>Work Authorized</u>	<u>Documents</u>
	Aug 29, 1937	and Old Rivers to a depth of 21 feet to a point 2,000 feet upstream from Clark Ave. viaduct and 18-foot turning basin.	& Rivers and Harbors Committee Doc. 84, 74th Cong., 2nd sess.
	Aug 30, 1935 ⁴¹	Deepening outer harbor and channel between piers to present project dimensions, construction of 400-foot spur breakwater at gap in shore arm of west breakwater, removal of easterly 150 feet of west breakwater, elimination from project of a 298-foot southerly extension on west pier, and abandonment of inner 932 feet of shore arm of west breakwater.	H. Doc. 477, 72nd Cong., 2nd sess.
	Aug 30, 1935 ⁴⁰	Maintenance dredging in Cuyahoga and Old Rivers For 1 year as an emergency measure.	Rivers and Harbors Committee Doc. 39, 74th Cong., 1st sess.
	Mar 2, 1945 ⁴²	Maintenance extension of Cuyahoga River channel. Extension, maintenance, and improvement to a depth of 21 feet of Cuyahoga River channel to present project limit. ^{43 44}	Specified in act. H. Doc. 95, 79th Cong., 1st sess.
	Jul 24, 1946	Improvement of Cuyahoga and Old Rivers to a depth of 23 feet and replacement or pier construction of 7 railroad bridges. ⁴⁵	H. Doc. 629, 79th Cong., 2nd sess.
	Jul 3, 1958	Deepening channel 25 feet through east basin of outer harbor; replacement of Erie-Lackawanna Railroad bridge over Cuyahoga River at mile 4.1 and widening of channel at that point, with elimination of reconstruction of east pier of bridge as previously authorized; and replacement of Baltimore and Ohio Railroad Bridge over Old River near its mouth and Willow Avenue Highway Bridge about 800 feet above mouth and widening channel at four locations along lower, 2,000 feet of river. ⁴⁶	H. Doc. 107, 85th Cong., 1st sess.
	Jul 14, 1960	Depth of 29 feet in lake approach to main entrance; 28 feet in entrance channel to lakeward ends of piers at mouth of Cuyahoga River; 27 feet in river to a point just above its junction with Old River, and in Old River to upstream limit of present 23-foot project; 28 feet in west basin within existing project limits as modified to eliminate a triangular area at west end and to extend limits to a line parallel to and 75 feet from harbor line; and 28 feet in westerly 800 feet of east basin. ⁴⁷	H. Doc. 152, 86th Cong., 1st sess. ³³
	Oct 23, 1962	An area in east basin 27 feet deep extending 3,800 feet easterly of 28-foot area with project limits 380 feet from east breakwater and on landward side generally by a line 75 feet lakeward of and parallel to harbor line. A dock channel to Nicholson Cleveland Terminal Co. pier, at	H. Doc. 527, 87th Cong., 2nd sess.

⁴¹ Authorized by Public Works Administration, Sep 6, 1933.⁴² First Deficiency Appropriations Act approved Apr 1, 1944.⁴³ Deepening left half of channel extension was eliminated from project by 1962 R&H Act.⁴⁴ Authorized by Defense Plant Corp. May 19, 1942.⁴⁵ Widening Cuyahoga River downstream at end of Cut 4 classified inactive.⁴⁶ Replacement of bridges 19 and 32, widening Cuyahoga and Old River Channels, classified deferred.⁴⁷ Deepening remainder of Cuyahoga River from Bridge 1 to and including Old River, classified deferred.

BUFFALO, NY DISTRICT

Table 20-B AUTHORIZING LEGISLATION

<u>See Section</u>	<u>Acts</u>	<u>Work Authorized</u>	<u>Documents</u>
		easterly end of east basin, from 25-foot contour to a limit 75 feet north of pierhead line, 400 feet wide at shoreward end and flared toward the lake.	
Jul 14, 1960 As amended	Deepening upper end of Old River channel from 21 To 27 feet.		Sec. 107, PL 86-645. Authorized by Chief of Engineers Dec 6, 1966
Oct 22, 1976	Preparation of Phase I design memorandum for improvements consisting of removal of portions of entrance breakwater; construction of breakwater; construction of breakwater extension of east entrance; deepening approach and entrance channels; construction Of diked disposal area; and installation of recreational fishing facilities on west breakwater.		Sec. 175, PL 94-587
Aug 15, 1985	Deepening and widening east entrance and approach channels, deepening the east basin channel and disposing of dredge material in an existing disposal site, As described in the Report to the Board of Engineers for Rivers and Harbors Jan 22, 1985, including bulk heading and other necessary repairs at Pier 34 and approach channels and necessary protective structures for mooring basins for transient vessels in the area south of Pier 34 and including such modifications as may be recommended by the Chief of Engineers at a cost not to exceed \$36,000,000.		PL 99-88
Nov 17, 1986	Bulk heading and other necessary repairs at Pier 34 and approach channels and necessary protective structures for mooring basins for transient wells in the area south Of Pier 34.		Sec. 202, PL 99-662. PL 100-202
Dec 21, 1987	Appropriates and directs the Secretary of the Army to use the sum of \$11,000,000 which is to remain available until expended to carry out the provisions for the harbor modifications contained in PL 99-662.		Doc. 653, 61st Cong., 2nd sess.
6	CONNEAUT HARBOR, OH		
Jun 25, 1910	Extension of east breakwater, construction of new west breakwater, removal of portion of old west breakwater, and dredging of outer harbor to 19 feet.		H. Doc. 653, 61 st Cong., 2d sess.
Aug 8, 1917 ⁴⁸	Realignment of west breakwater, removal of remainder of old west breakwater, and deepening outer harbor to 20 feet. Removal of Bessemer & Lake Erie R.R. Co. of inner 635 feet of west pier.		H. Doc. 983, 64th Cong., 1st sess.
Aug 30, 1935 ⁴⁰	Removal of portion of west breakwater, extension of breakwaters to present project dimensions, construction of pierheads on outer		H. Doc. 48, 73rd Cong., 1st sess.

⁴⁸ Permit of Secretary of War, Aug 5, 1927.

Table 20-B AUTHORIZING LEGISLATION

<u>See Section</u>	<u>Acts</u>	<u>Work Authorized</u>	<u>Documents</u>
		ends of breakwaters, deepening outer harbor to present project dimensions; removal of portions of river pier, and elimination from project of a 255-foot shoreward extension of west breakwater.	
	Oct 23, 1962	Deepening easterly part of outer harbor to 28 feet in soft material and 29 feet in hard material; deepening remaining triangular area of outer harbor to 22 feet in soft material and 23 feet in hard material; deepening inner harbor for 2,450 feet upstream of outer end of west pier to 27 feet in soft material and 28 feet in hard material; removal of east pier, extension of east breakwater to shore; and an access channel 8 feet deep in outer harbor to city dock. Previously authorized, but uncompleted portion of work authorized by 1917 and 1935 Acts combined with this act for accomplishment as a single improvement.	H. Doc. 415, 87th Cong., 2nd sess.
	Oct 12, 1996	De-authorized the most southerly 300 feet of the 1,670 foot long shore arm, authorized by the R&H Act of 1910.	PL 104-303
7	DUNKIRK HARBOR, NY		
	Mar 2, 1827	Construction of west pier. ^{38, 49}	S. Ex. Doc. 42, 35th Cong., 1st sess. and Annual Report 1866 pt. IV, p. 155
	Mar 2, 1867	Breakwater and evacuation of entrance channel to 13 feet. ³⁸	Annual Report, 1871, p. 214
	Jun 3, 1896	Deepening of entrance channel and harbor basin to a depth of suitable for vessels of 16-foot draft.	H. Doc. 63, 54th Cong., 1st sess.
	Jun 25, 1910	Removal of rock reef bordering the inner entrance channel.	H. Doc. 720, 61st Cong., 2nd sess.
	Jun 30, 1948	Deepening outer entrance channel to present project depths; removal of rock shoal on the west side of the entrance channel to a depth of 17 feet, and changed limits of the inner entrance channel and basin to present project dimensions.	H. Doc. 632, 80th Cong., 2nd sess. ³³
	Dec 15, 1970	Construction of small-boat harbor.	H. Doc. 91-423, 91st Cong., 2nd sess.
	(House Public Works Committee) Jun 22, 1971 (Senate Public Works Committee) Sec. 201 of F.C. Act of 1965		

⁴⁹ Modified 1828 and 1852.

Table 20-B AUTHORIZING LEGISLATION

<u>See Section</u>	<u>Acts</u>	<u>Work Authorized</u>	<u>Documents</u>
8		ERIE HARBOR, PA	
	May 26, 1824	Breakwaters and piers; dredging entrance channel; and brushwood protection of beach of Presque Isle peninsula. ³⁸	Annual Report, 1915, p. 1965
	Mar 3, 1899	Deeping channel and harbor basin 18 feet, repair and extension of piers; and plant growth and emergency protection of work on peninsula.	H.Doc.70, 55th Cong., 1st sess. and Annual Report, 1896, p. 3237 ⁵⁰
	Jun 15, 1910	Deepening channel and part of harbor to 20 feet.	Rivers and Harbors Committee Doc. 26, 61st Cong., 2nd sess.
	Nov 28, 1920 ⁵¹	Re-conveyed Presque Isle peninsula to the State of Pennsylvania for park purposes.	
	Aug 30, 1935	Deepening, widening, and straightening entrance channel, dredging channel at easterly end of harbor basin, all to present project dimensions; elimination of north breakwater from project; and limitation of south breakwater to a length of 1,200 feet.	H. Doc. 52, 73rd Cong., 1st sess.
	Mar 2, 1945	Protection of the peninsula south of the waterworks settling basin.	Specified in act.
	Sep 3, 1954	Widen 25-foot deep approach channel to ore dock.	H. Doc. 345, 83rd Cong., 2nd sess.
	Jul 14, 1960	Depth of 29 feet in the entrance channel to a point opposite the inner end of the north pier, thence 28 feet in soft material and 29 feet in hard material in the remainder of the entrance channel, within the general limits of the 25-foot basin and inner channel opposite the ore dock except as modified to eliminate from the project a triangular area along the easterly side; and a depth of 28 feet over 300-foot westward extension of the 25-foot basin. ⁵²	H. Doc. 199, 86th Cong., 1st sess.
	Oct 23, 1962	Depth of 27 feet in soft material and 28 feet in hard material in approach area to Duquesne Marine Terminal. Previously authorized but uncompleted portion of work authorized by 1935 Act is combined with this act as a single improvement.	H. Doc. 340, 87th Cong., 2nd sess. ³³
9		FAIRPORT HARBOR, OH	
	Mar 3, 1825 ⁵³	Construction of piers.	Annual Report, 1889, pp. 2147-2153
	Jun 3, 1896 Mar 3, 1905	Breakwaters and dredging outer harbor to a depth of 18 feet.	H. Doc. 347, 54th Cong., 1st sess. and Annual Reports, 1896, p. 2956; 1903, p. 2084. 1905, p. 2349
	Mar 2, 1919	1,400-foot extension of east breakwater, present project dimension of east pier, and deepening to 19 feet.	H. Doc. 206, 63rd Cong., 1st sess.

⁵⁰ Extension of north pier portion of this modification was deauthorized Nov 1981.

⁵¹ Public Law 366.

⁵² Deepening strips adjacent to north and south piers was deauthorized Aug 1982.

⁵³ Modified 1830, 1881, and 1890. New work completed under previous projects.

Table 20-B AUTHORIZING LEGISLATION

<u>See Section</u>	<u>Acts</u>	<u>Work Authorized</u>	<u>Documents</u>
	Jan 21, 1927 Jul 3, 1930	4,000-foot extension of east breakwater at limit of cost to the United States of \$715,000.	H. Doc. 592, 69th Cong., 2nd sess. Rivers and Harbors Committee Doc 13, 70th Cong., 1st sess.
	Aug 30, 1935 ⁵⁴	Deepening of outer harbor and entrance channel to present dimensions; extending the west breakwater to present project dimensions with pierhead at its outer end; removal of west pier, and construction of bulkhead on west side of river channel.	H. Doc. 472, 72nd Cong., 2nd sess.
	Aug 26, 1937	Dredging of 21 and 24-foot river channels and turning basin in Grand River to present project dimensions.	Rivers and Harbors Committee Doc. 79, 74th Cong., 2nd sess.
	Jul 24, 1946	Dredging of 8-foot river channel.	H. Doc. 706, 79th Cong., 2nd sess. ³³
10		GREAT SODUS BAY HARBOR, NY	
	Mar 2, 1829	Construction of piers and breakwater. ⁹	Annual Report, 1876 pt. II p. 589
	Aug 2, 1882	Extension of piers to 15-foot contour in the lake.	Annual Report, 1881, p. 2442
	Mar 3, 1925	Deepening and widening of channel to 180 foot depth and 150 foot width.	H. Doc. 192, 68th Cong., 1st sess.
	Jul 3, 1930	Widening channel lakeward of piers to 250 feet.	Rivers and Harbors Committee Doc. 17, 70th Cong., 1st sess.
	Aug 30, 1935	Dredging channel to present project dimensions.	Rivers and Harbors Committee Doc. 23, 72nd Cong., 1st sess.
11		HURON HARBOR, OH	
	Mar 2, 1905	Extension of west pier, construction of east breakwater, removal of part of old east pier; deepening of channel to 19 feet; and dredging of sheltered area.	H. Doc. 122, 58th Cong., 2nd sess.
	Mar 2, 1919	Widening river to 200 feet; removal of remainder of old east pier, construction of new spur pier, enlargement of sheltered area; and closure of beach at shore end of west pier.	H. Doc. 5, 63rd Cong., 1st sess.
	Aug 30, 1935 ⁵⁴	Extension of west pierhead at its outer end; removal of outer end of east breakwater and construction pierhead on new outer end; widening and deepening channel to present project dimensions; enlargement of turning basin at head of channel; shore protection west of west pier, and elimination from project construction of spur pier and dredging sheltered area outside channel limits.	H. Doc. 478, 72nd Cong., 2nd sess.
	Oct 23, 1962	Depths of 29 feet in approach channel, 28 feet in entrance channel, 27 feet in river channel, 21 feet in turning basin and abandonment of lakeward end of existing approach channel.	H. Doc. 165, 87th Cong., 1st sess. ³³
12		LITTLE SODUS BAY HARBOR, NY	
	Aug 30, 1852	West entrance pier.	Annual Report, 1874, p. 256

⁵⁴ Partly included in Public Works Administration Program, Nov 15, 1933.

BUFFALO, NY DISTRICT

Table 20-B AUTHORIZING LEGISLATION

<u>See Section</u>	<u>Acts</u>	<u>Work Authorized</u>	<u>Documents</u>
	Jun 23, 1866	Extension of west pier and construction of west breakwater, and dredging channel to 12 feet deep, 400 feet wide.	Annual Report, 1874, p. 256
	Mar 3, 1871	East pier and east breakwater.	Annual Report, 1871, p. 234
	Mar 3, 1881	Extension of piers lakeward to 15.5-foot contour, and dredging channel to 15.5 feet.	Annual Report, 1881, pp. 2444 and 2446
	Jun 13, 1902	Extension of east pier 300 feet lakeward.	Annual Report, 1901, p. 3364
13	LORAIN HARBOR, OH		
	Mar 3, 1899	Breakwaters and extension of piers to present dimensions.	H. Doc. 131, 55th Cong., 2nd sess., and Annual Report 1898, p. 2718.
	Mar 2, 1907	Extend 18-foot channel from inner end of piers to Erie Avenue Bridge.	H. Doc. 560, 60th Cong., 1st sess.
	Jun 25, 1910	Extend breakwaters and dredge to depth of 19 feet in outer harbor.	H. Doc. 644, 61st Cong., 2nd sess.
	Aug 8, 1917	Extend breakwaters to present dimensions.	H. Doc. 980, 64th Cong., 1st sess.
	Aug 8, 1917	Deepen outer harbor and river channel of Erie Avenue Bridge to 20 feet.	H. Doc. 985, 64th Cong., 1st sess.
	Jul 3, 1930	Extend 20-foot channel to American Shipbuilding Co. Drydock.	H. Doc. 587, 69th Cong., 2nd sess.
	Aug 30, 1935	Widen 2 bends in river and enlarge turning basin opposite National Tube Co. dock. ⁴¹	H. Doc. 469, 72nd Cong., 2nd sess.
	Aug 30, 1935	Approach channel to municipal pier.	Senate Committee print, 73rd Cong., 2nd sess.
	Aug 30, 1935	Deepen outer harbor and river channel to American Shipbuilding Co. Drydock 2 present project dimensions and extension of river channel to upper end of National Tube Co. dock with turning basin opposite that dock. Maintenance dredging in Black River from American Shipbuilding Co. Drydock 2. Upper end of National Tube Co. dock was authorized Apr 7, 1934, by Public Works Administration.	Doc. 51, 74th Cong., 1st sess. Rivers and Harbors Committee
	Aug 30, 1935	Enlarging turning basin opposite National Tube Co. Dock to present project dimensions.	Specified in act.
	Mar 2, 1945	Turning basin in bend of Black River immediately upstream from Baltimore & Ohio RR coal dock.	H. Doc. 161, 77th Cong., 1st sess.
	Jul 14, 1960	Replace Norfolk and Western Railway swing bridge with a vertical lift bridge; construct two detached arrowhead	H. Doc. 166, 86th Cong., 1st. sess.

Table 20-B AUTHORIZING LEGISLATION

<u>See Section</u>	<u>Acts</u>	<u>Work Authorized</u>	<u>Documents</u>
		breakwaters lakeward of existing breakwaters; construct extension of east breakwater, to shore; remove 300 feet of lakeward end of west breakwater; remove outer 1,100 feet east pier; deepen lake approach to 29 feet, 800-foot wide outer harbor channel to 27 feet; widen river channel at bends; and construct a new turning basin 21 feet deep near upstream limit of existing project. ⁵⁵	
	Jul 14, 1960 As amended	Construction of a 225 foot detached rubble mound breakwater and an 800 foot long rubble mound breakwater attached to the east breakwater shore arm I in the east basin of the outer harbor.	Sec. 107, PL 86-645. Authorized Chief of Engineers Mar 12, 1986
	Nov 17, 1986	Two bed cuts on Black River between the Norfolk and Western Railroad Bridge and 21st Street Bridge, excavated to existing channel depth of 27 feet. Widening Upper Turning Basin at existing authorized depth of 21 feet. ³⁷	H. Doc. 124, 99th Cong., 1st sess.
33		MT. MORRIS LAKE, GENESEE RIVER, NY	
	Dec 22, 1944	Construction of a concrete gravity dam and reservoir. Construct a visitor center at Mt. Morris Dam to be known as the "William B. Hoyt II Visitor Center."	H. Doc. 615, 78th Cong., 2nd sess. Sec. 103, PL 102-580
31		NEW YORK STATE BARGE CANAL, NY	
	Nov 17 1986	Authorizes the Secretary to reimburse the State of New York for 50% of the cost of operating, maintaining and rehabilitating the New York State Barge Canal. The Federal contribution shall be limited in any fiscal year to \$5,000,000, or 50% of the expenditures in that fiscal year, whichever is the lesser. ³⁷	P.L. 99-662
	Oct 12, 1996	The Secretary may make capital improvements to the New York State Canal System for the purposes of rehabilitation, Renovation, preservation, and maintenance of the New York State Canal System and its related facilities. The Federal share of the cost of capital improvements shall be 50%, up to a limit of \$8,000,000.	P.L. 104-303
	Mar 4, 1913	Deepening channel to 12 feet and maintenance of west pier.	H. Doc. 780, 62nd Cong., 2d sess.
	Nov 17, 1986	Construct the project for Navigation, Report of the Chief of Engineers dated Jun 11, 1980.	Sec. 601, PL 99-662
15		OLCOTT HARBOR, NY	
	Mar 2, 1867	Dredging a channel 11 feet deep between parallel piers.	Annual Report, 1866, pt. III, p. 15 pt. IV, p. 158
	Mar 4, 1913	Deepening channel to 12 feet and maintenance of west pier.	H. Doc. 780, 62nd Cong., 2d sess.
	Nov 17, 1986	Construct the project for Navigation, Report of the Chief of	Sec. 601, PL 99-662

⁵⁵ Deepening and widening remainder of Black River Channel at Cut 1 has been de-authorized.

Table 20-B AUTHORIZING LEGISLATION

<u>See Section</u>	<u>Acts</u>	<u>Work Authorized</u>	<u>Documents</u>
34		ONONDAGA LAKE, NY	
	Nov 16, 1990	The Assistant Secretary of the Army for Civil Works, The administrator of the Environmental Protection Agency, and the Governor of the State of New York, acting jointly, shall convene a management conference for the restoration and management of Onondaga Lake. The purpose of the conference shall include the development, in the 2-year period beginning on the date of enactment of this fact, for a Reaffirmation of PL 101-596.	PL 101-596
	Nov 28, 1990	The Secretary is authorized to design and construct projects to address water quality problems associated with storm water discharges from large storm events for the watershed areas of Onondaga County and Syracuse, New York, from which waters discharge into Onondaga Lake, New York. The design of projects shall ensure the development of effective Federal and non-Federal actions which will contribute toward compliance with the Federal Water Pollution Control Act. Total project cost shall be shared at 75% Federal and 25% non-Federal. Operation and maintenance cost shall be 100% non-Federal.	PL 101-640
	Oct 31, 1992	Onondaga County and Syracuse, New York, from which waters discharge into Onondaga Lake, New York. The design of projects shall ensure the development of effective Federal and non-Federal actions which will contribute toward compliance with the Federal Water Pollution Control Act. Total project cost shall be shared at 75% Federal and 25% non-Federal. Operation and maintenance cost shall be 100% non-Federal.	PL 102-580
16		OSWEGO HARBOR, NY	
	Jul 11, 1870	Construction of outer west breakwater. ³⁸	Annual Report, 1870, pp. 54, 220 and 221
	Mar 2, 1907	Repair of outer west breakwater under Plan (A). ⁴⁶	H. Doc. 55, 58th Cong., 2nd sess.
	Jul 3, 1930	Construction of arrowhead breakwaters; deepening outer harbor between arrowhead breakwaters; west outer harbor east of Erie-Lackawanna coal dock, and Oswego River north of Seneca St., to 21 feet; and deepening west outer harbor, west of Erie-Lackawanna coal dock, to 16 feet. ⁵⁶	Rivers and Harbors Committee Doc. 24, 71st Cong., 2nd sess.
	Aug 30, 1935	Widening channel to harbor line in Oswego River north of Seneca Street.	Rivers and Harbors Committee Doc. 7, 74th Cong., 1st sess.
	Oct 17, 1940	Closing gap in west breakwater; deepening west outer harbor, west of east line of Erie-Lackawanna coal dock, to project depth. ⁵⁷	H. Doc. 96, 76th Cong., 1st sess.
	Jun 30, 1948	Construction of east outer breakwater; removal of the inner end of east arrowhead breakwater; and dredging channel and basin in east outer harbor. ⁵⁸	H. Doc. 722, 80th Cong., 2nd sess.
	Sep 3, 1954	Construction of detached breakwater at harbor entrance and removal of shoals in approach to harbor entrance to 25 feet deep.	H. Doc. 487, 81st Cong., 2nd sess.
	Oct 23, 1962	Depth of 27 feet in lake approach channel; 25 feet deep in outer harbor channel 800 feet wide from entrance gap to a turning basin 25 feet deep about 750 by 1,100 feet, at mouth of Oswego River; depth of 24 feet in earth and 25 feet in hard material in river channel from turning basin to upstream end of Port of Oswego.	H. Doc. 471, 87th Cong., 2nd sess.

⁵⁶ Deepening a 200-foot strip along harbor line east of mouth of Oswego River is de-authorized.

⁵⁷ Deepening to 22 feet a 150-foot wide strip in west outer harbor de-authorized in May 1981.

⁵⁸ Modification eliminated by River and Harbor Act of Oct 26, 1962.

Table 20-B AUTHORIZING LEGISLATION

<u>See Section</u>	<u>Acts</u>	<u>Work Authorized</u>	<u>Documents</u>
		channel from turning basin to upstream end of Port of Oswego Authority's east side terminal, a distance of about 1,600 feet; relocation of Federal project limits in Oswego River upstream of 24-foot channel to Federal project limit at north line of West Seneca St., on lines parallel to 50 feet channel ward of established harbor lines; elimination of maintenance of inner west breakwater and elimination of modification authorized by River and Harbor Act of 1948.	
	Oct 12, 1996	De-authorized the portion of the Federal Channel authorized by the R&H Act of 1910 as amended by the R&H Act of 1935, from the southernmost alignment of the Route 68 Bridge upstream to the northernmost alignment of the Lake St. Bridge.	PL 104-303
17		OTTOWA RIVER HARBOR, MI, OH	
	Dec 17, 1970	6-foot deep, 16,500 foot long channel in Ottawa River and 8-foot deep, 15,000-foot channel in Maumee Bay.	H. Doc. 396, 91 st Cong., 2d sess.
	Nov. 28, 1990	Continuation of authorization	Sec. 107, PL 101-640.
18		PORT CLINTON HARBOR, OH	
	Jun 10, 1872	Parallel stone and pile jetties at mouth of river, east jetty 2,200 feet long and west jetty 1,980 feet long extending to 10-foot contour in lake channel 10 feet deep and 100 feet wide for outer 4,200 foot length and 200 feet wide for inner 800 foot length to Highway Bridge.	Annual Report, 1875, p. 295
19*		PORT ONTARIO, NY	
	Mar 2, 1945	Construct harbor of refuge.	H. Doc. 446, 78th Cong., 2d sess.
	Nov 17, 1986	Maintain harbor of refuge.	Sec. 615, PL 99-662
20		PRESQUE ISLE PENINSULA, ERIE, PA	
	Sep 3, 1954	Construction of groin system, seawall, bulkhead, placement of beach material at waterworks reservation and along remainder of peninsula; removal of portions of existing structures.	H. Doc. 231, 81st Cong., 1st sess.
	Jul 14, 1960	Periodic nourishment of shores for a 10-year period.	H. Doc. 397, 86th Cong., 2nd sess.
	Mar 7, 1974	Periodic nourishment of shore for a 5-year period.	H. Doc. 796, 93rd Cong., 2nd sess.
	Oct 22, 1976	Preparation of Phase I design memorandum for improvements consisting of construction of five sections of spaced offshore breakwaters and replenishment of beach area with sand fill.	Sec. 101, PL 94-587
	Nov 17, 1986	Construct offshore breakwaters and restore beaches.	Sec. 501, PL 99-662
21		ROCHESTER, HARBOR, NY	
	Mar 2, 1829	Construction of piers. ³⁸	Annual Report, 1874, p. 247
	Aug 2, 1882	Extension of piers to 15 foot contour in the lake. Concrete superstructure on piers. ³⁸	Annual Report, 1881, p. 2437; Annual Report, 1905, p. 2383

BUFFALO, NY DISTRICT

Table 20-B AUTHORIZING LEGISLATION

<u>See Section</u>	<u>Acts</u>	<u>Work Authorized</u>	<u>Documents</u>
	Jun 25, 1910	Deepening channel to 20 feet.	H. Doc. 342, 61st Cong., 2nd sess.
	Aug 30, 1935 ³⁵	Dredging of the entrance channel and turning basin, and the elimination of the inner ends of the east and west piers, all to present project dimensions.	H.Doc. 484, 72nd Cong., 2nd sess.
	Mar 2, 1945	Maintenance of existing channel upstream of the Penn Central Co. Bridge.	H. Doc. 139, 76th Cong., 1st sess.
	Jul 14, 1960	Depth of 24 feet in the channel from the lake to the west pier, a depth of 23 feet between the piers and in the lower river to the Penn Central Co. Bridge, including the existing turning basin; a depth of 21 feet from the bridge to the upstream project limit, with suitable widening at the bends; and, stream turning basin 21 feet deep and 650 feet wide adjacent to the improved channel, with two mooring dolphins.	H. Doc. 409, 86th Cong., 2nd sess. ³³
	Nov 28, 1990	A navigation project for the mouth of the Genesee River in Rochester, New York, by development and implementation of wave surge control measures. Project to be carried out under Section 107 of the River and Harbor Act of 1960 (33 U.S.C. 577).	PL 101-640
21		ROCKY RIVER HARBOR, OH	
	Jun 10, 1872	East pier and dredging of channel.	Annual Report 1871, p. 211
	Aug 26, 1937	Extension of east pier and deepening channel to present project dimensions.	H. Doc. 70, 75th Cong., 1st sess.
	Oct 27, 1965	Realign and extend channel and construct an anchorage basin.	H. Doc. 352, 88th Cong., 2nd sess.
22		SACKETS HARBOR, NY	
	Aug 2 1882	Deepening harbor area to 12 feet.	Sen. Ex. Doc. 29, 47th Cong., 1st sess.
	Aug 13, 1888	Construct timber crib mooring place, and brush and stone jetty.	Annual Report, 1888 pt. III, p. 2086
		Build 2 stone groins (OCE-June 8, 1896)	Annual Report, 1896, pt. III, p. 3160
	Mar 2, 1945	Deepening to project dimensions.	H. Doc. 732, 79th Cong., 2d sess.
23		SANDUSKY HARBOR, OH	
	Mar 3, 1899	Construction of channel protection works.	H. Doc. 362, 55th Cong., 2nd sess. and Annual Report 1898, p. 2708
	Jun 13, 1902	Widening of Straight and Dock channels and deepening to 19 feet.	H. Doc. 120, 56th Cong., 2nd sess.
	Mar 2, 1919	Extension of east jetty to total length of 6,000 feet, with pierhead on outer end; deepening of the outer, straight, and easterly portion of dock channel to 20 feet.	H. Doc. 982, 64th Cong., 1st sess.

Table 20-B AUTHORIZING LEGISLATION

<u>See Section</u>	<u>Acts</u>	<u>Work Authorized</u>	<u>Documents</u>
	Jan 21, 1927	Deepening of dock channel to 22 feet.	H. Doc. 584, 69th Cong., 2nd sess.
	Aug 30, 1935	Enlargement of turning basin and construction rock dike.	Rivers and Harbors Committee Doc. 2, 73rd Cong., 1st sess.
	Oct 2, 1945	Maintenance of bay channel to 22 feet; and elimination from project of portion of turning basin and rock dike.	H. Doc. 328, 76th Cong., 1st sess.
	Jul 14, 1960	Extending Moseley channel and deepening that channel and the outer end of Straight channel to 26 feet, from deep water in the lake to the vicinity of Cedar Point dock; widening the bend at the junction of the Moseley and Straight channels to 25 feet from the vicinity of Cedar Point dock to Junction Bay channel; deepening the Bay channel from the junction with the Straight channel to the outer end of the Pennsylvania Coal dock no. 3 to 24 feet, thence from outer end of the coal dock to the turning basin to 24 feet in removal of approximately 300 feet of the rock dike, and deepening to 24 feet in soft material and 25 feet in hard.	H. Doc. 144, 85 th Cong., 1 st Sess.
24		STURGEON POINT, EVANS, NY	
	Jul 14, 1960	Rehabilitate existing breakwater, construct rubble mound, west breakwater extension, construct rubble mound east breakwater, a shore revetment and dredging.	Sec. 107, PL 86-645. Authorized by Chief of Engineers Oct 21, 1987.
25		TOLEDO HARBOR, OH	
	Mar 3, 1899	A channel 400 feet wide and 21 feet deep from 25-foot contour in Maumee Bay to Fassett Street Bridge, 200 feet wide and 19 feet deep above that point and a 500-foot turning basin at upper end. A stone re-vetted earth dike in Maumee Bay channel.	H. Doc. 198, 55th Cong., 2nd sess. and Annual Report 1898, p. 2693
	Jun 25, 1910	Act 1899 modified to insure a navigable channel to 21 feet from Fassett Street Bridge to lake.	H. Doc. 865, 60th Cong., 1st sess.
	Aug 30, 1935	Channel 25 feet deep and 500 feet wide from 25-foot contour to mouth of Maumee River (300 feet wide on each side of center dike in bay channel), thence 400 feet wide to Fassett Street Bridge, 200 feet wide above that point and a turning basin at upper end 18 feet deep.	River and Harbors Committee Doc. 21, 72nd Cong., 1st sess.
	May 17, 1950	Widening at bend of mouth of River opposite Chesapeake and Ohio Railway Dock.	H. Doc. 189, 81st Cong., 1st sess.
	Sep 3, 1954	Removal of center dike in Maumee Bay channel.	H. Doc. 620, 81st Cong., 2nd sess.
	Jul 3, 1958	Enlarge widening at bend opposite Chesapeake and Ohio dock and turning basin opposite American Shipbuilding Co. dock.	H. Doc. 436, 84th Cong., 2nd sess.
	Jul 14, 1960	Deepening Bay channel including widening to 28 feet, deepen river channels to NY Central Railroad bridge to 27 feet and construct new turning basin below Anthony Wayne Bridge.	H. Doc. 153, 86th Cong., 1st sess. ³³
26		TOUSSAINT RIVER, CARROLL TWSP., OH	

BUFFALO, NY DISTRICT

Table 20-B AUTHORIZING LEGISLATION

<u>See Section</u>	<u>Acts</u>	<u>Work Authorized</u>	<u>Documents</u>
	Jul 14, 1960	Dredged channel from the mouth of the Toussaint River, 2,100 feet into Lake Erie, 4 feet below LWD, 150 feet wide in Lake Erie and tapered to 100 feet at the river mouth.	Sec. 107, PL 86-645. Authorized by Chief of Engineers Sep 29, 1990.
27		VERMILION HARBOR, OH	
	Jul 4, 1836	Parallel piers and dredging channel to 8 feet deep.	Annual Report, 1880
	Mar 3, 1875	Deepening of channel to 12 feet.	Annual Report, 1874, p. 219
	Mar 3, 1905	Reconstruction of piers.	H. Doc. 252, 58th Cong., 2nd sess.
	Jul 3, 1958	New entrance formed by two overlapping arrowhead breakwaters and extension of existing river channel upstream to Liberty St. Bridge.	H. Doc. 231, 85th Cong., 1st sess.
28		WEST HARBOR, OH	
	Oct 27, 1965	Construction of arrowhead breakwaters, entrance channel and access channel.	H. Doc. 245, 88th Cong., 2nd sess.
29		WILSON HARBOR, NY	
	Mar 2, 1945	Entrance channel 80 feet wide and 8 feet deep; and restore east and west piers.	H. Doc. 679, 76th Cong., 2nd sess.
	Aug 13, 1968	Extend existing channel 300 feet; and construct new channel 3,800 feet long through Tuscarora Bay.	H. Doc. 112, 90th Cong., 1st sess.
		Rehabilitate existing breakwater, construct rubble mound west breakwater extension, construct rubble mound east breakwater, a shore revetment and dredging.	Sec. 107, PL 86-645. Authorized by Chief of Engineers Oct 21, 1987.

TABLE 20-C OTHER AUTHORIZED NAVIGATION PROJECTS

Project	Status	For Last Full Report See annual Report For	Construction	Cost to Sep 30, 2003 Operations & Maintenance
Barcelona Harbor, NY	Completed	2001	\$1,185,853	\$2,462,775
Big (Cunningham) Creek, OH	Completed	- ¹	19,763 ²	-
Black River Harbor, NY	-	- ¹	42,401	-
Buffalo Small Boat Harbor, NY	Completed	1994	602,016 ³	-
Cattaraugus Harbor, NY	Completed	2000	4,804,060 ⁴	373,578
Cattaraugus Creek, NY	-	- ²	57,410	-
Geneva-on-the Lake, OH	Completed	1990	3,145,176 ⁵	10,168
Grasse River Massena, NY	-	1891	9,000 ²	-
Kelleys Island, OH	Active	1974 ⁵	129,874	-
Little River at Cayuga Island, NY	Completed	1969	46,804 ⁶	6,580
Morristown Harbor, NY	Completed	1949	6,221	13,218
Niagara Remedial Works, NY ⁷	Completed	1966	6,069,395	510,819
Niagara River, NY ⁸	Completed	1964	559,457 ⁹	311,840
Ogdensburg Harbor, NY	Completed	1987	1,720,466 ¹⁰	1,436,688 ¹¹
Pultneyville Harbor, NY ¹³	-	1934	68,219	20,087
Rochester Harbor Wave Surge, NY	Completed	2001	1,800,769	1,713,189
Sandusky River, OH ¹⁴	-	1894	58,000 ²	557

¹ Only information available is in index to reports of Chief of Engineers.

² Amount includes maintenance; not separable.

³ Excludes \$593,216 contributed funds.

⁴ Excludes \$2,566,529 contributed funds.

⁶ Annual Report for Detroit District.

⁷ Includes local interests contribution of \$25,742.

⁸ Cost of operation and maintenance of this project will be settled directly by concerned power agencies. No further appropriations will be made to this project.

⁹ Construction of compensating works as authorized by 1930 R&H Act was authorized by Congress in Aug 1977.

¹⁰ Includes local interest contribution of \$27,563.

¹¹ Includes \$271,380 for previous projects. Excludes \$57,000 contributed funds.

¹² Includes \$130,512 for previous projects.

¹³ Abandonment recommended in H. Doc. 275, 64th Cong., 1st sess.

¹⁴ Abandonment recommended in Ex. Doc. 16, 35th Cong., 1st sess.

BUFFALO, NY DISTRICT

Table 20-D OTHER AUTHORIZED SHORE PROTECTION PROJECTS

Project	Status	For Last Full Report See Annual Report For	Construction	Cost to Sep 30, 2003 Operations & Maintenance
Hamlin Beach State Park, NY	Completed	1976	\$1,769,600	-
Lakeview Park, Lorain, OH	Completed	1987	1,741,125 ¹	-
Maumee Bay State Park, OH	Completed	1995	2,780,975 ²	-
Selkirk Shore State Park, Lake Ontario, NY ³	Completed	1963	58,978	\$307

¹ Federal participation was limited to one-third of first cost when project was authorized by 1954 River and Harbor Act.
Federal participation was changed from one-third to 70 percent of remaining work under Public Law 87-874.

² Does not include \$739,700 contributed funds.

³ Does not include \$199,845 contributed funds.

Table 20-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Status	For Last Full Report See Annual Report For	Construction	Cost To Sep 30, 2003 Operations & Maintenance
Auburn, NY, Owasco Outlet	Completed	1962	\$ 371,985 ¹	-
Batavia and Vicinity, Tonawanda Creek, NY	Completed	1957	335,385	-
Camp Perry, OH	Completed	1967 ²	275,000 ³	-
Cayuga Creek, Cheektowaga, NY ⁴	Completed	1984	1,404,500	-
Cuyahoga River Basin, OH	Active	1985	1,117,000	-
Dansville and Vicinity, Canaserga Creek, NY	Active	1985	490,300	-
Fremont, OH, Sandusky River	Completed	1976	8,589,824 ⁵	-
Ithaca, Cayuga Inlet, NY	Completed	1978	3,929,300 ⁶	-
Lackawanna, NY, Smokes Creek	Completed	1971	3,542,068 ⁷	-
Lancaster, Cayuga Creek, NY	Completed	1954	79,730	-
Marsh Creek, Geneva, NY	Completed	-	226,429	-
Montour Falls, Oswego River Basin, NY	Completed	1954	1,681,785	-
Onondaga Creek, Nedrow, NY ⁴	Completed	1964	330,231	-
Ottawa, OH	Deferred	1989	374,000	-
Owasco Inlet and Outlet, Montiville	Inactive			-
And Dry Creek, State Ditch and	Deferred	1950	281,559	-
Crane Brook, NY ⁸				
Point Place, Toledo, OH	Completed	1990	9,885,733 ⁹	-
Reno Beach-Howard Farms, OH	Completed	1997	5,483,192 ¹⁰	-
Scajaquada Creek, NY	Completed	1985	4,944,852	-
Syracuse Oswego River Basin, NY	Completed	1954	3,349,248	-
Warsaw, NY Oatka Creek ⁴	Completed	1969	558,317 ¹¹	-
Wellsville, NY, Genesee River	Completed	1978	3,145,303 ¹²	-

¹ Excludes cost of \$188,732 under Public Law 88-99, Flood Control and Coastal Emergencies Appropriation, incurred for project rehabilitation as a result of damages due to storm Agnes, Jun 1972.

² Annual Report for Detroit District.

³ Includes local interest contribution of \$125,000.

⁴ Project authorized by Chief of Engineers.

⁵ Includes local interest contribution of \$6,944. Excludes cost of \$383,786 under Public Law 84-99. Flood Control and Coastal Emergencies Appropriation, for emergency restoration of levees damaged during 1973.

⁶ Includes local interest contribution of \$99,999. Excludes cost of \$104,005 under Public Law 84-99. Flood Control and Coastal Emergencies Appropriation, incurred for project rehabilitation as a result of damages due to storm Agnes, Jun 1972.

⁷ Includes local interest contribution of \$50,000.

⁸ In-active portion of work for State Ditch has been done by local interest and work on Crane Brooks has been deferred at the request of local interests.

⁹ Excludes \$1,871,631 in contributed funds.

¹⁰ Excludes \$475,994 in contributed funds.

¹¹ Excludes cost of \$26, 807 under Public Law 84-99, Flood Control and Coastal Emergencies Appropriation, incurred for project rehabilitation as a result of damages due to storm Agnes, Jun 1972.

¹² Includes local interest contribution of \$50,000. Excludes cost of \$374,042 under Public Law 84-99, Flood Control and Coastal Emergency Appropriation, incurred for project rehabilitation as a result of damages due to storms.

BUFFALO, NY DISTRICT

TABLE 20-G DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended
Black Rock Channel and Tonawanda Harbor, NY 1935 R&H Act ¹	1962	Aug-77	-	-
Black Rock Channel and Tonawanda Harbor, NY 1954 R&H Act	1962	May-81	-	-
Buffalo Harbor Drift Removal, NY	-	Dec-92	-	-
Buffalo Ship Canal, Buffalo, NY	-	Dec-92	-	-
Caledonia, Genesee River, NY 1950 FC Act	1950	Jan-90	-	-
Cape Vincent Harbor, NY 1945 R&H Act	1962	Nov-86	-	-
Chittenango Creek and Tributaries, NY 1944 FC Act	1948	Jan-90	12,464	-
Conneaut Harbor, OH R&H Act, 1910 (southerly 300 feet of shorearm)	1997	Oct-96	-	-
Conneaut Harbor, OH 1966 R&H Act, 1990 WRDA	1995	Nov-95	-	-
Crane Creek State Park, OH 1962 R&H Act	1968 ²	Nov-79	-	-
Cuyahoga River Basin 1970 FC Act	-	Apr-99	-	-
Dansville & Vicinity 1948 FC Act	-	Apr 98	-	-
Dunkirk Harbor, NY WRDA 1986	-	Dec-92	-	-
Eastlake, Chagrin River, OH 1965 FC Act	1976	Jan-90	506,344	-
Edgewater Park, OH 1954 R&H Act	-	Jan-90	-	-
Elk Creek Harbor, PA 1966 R&H Act	1978	Dec-92	101,500	-
Erie Harbor, PA 1899 R&H Act	1963	Nov-81	-	-
Erie Harbor, PA 1945 R&H Act	1963	Aug-77	-	-
Erie Harbor, PA 1960 R&H Act	1963	Aug-82	-	-
Fairhaven Beach State Park, NY 1958 R&H Act	-	Jan-90	-	-
Fairport Harbor, OH 1960 R&H Act	1995	Nov-95	67,000	-
Fairport Harbor, OH Sec. 201 1965 FC Act	1995	Nov-95	-	-
Fort Niagara State Park, NY Sec. 201 1965 FC Act	-	Jan-90	-	-
Grandview Bay Harbor, NY 1945 R&H Act	1948	Aug-77	1,524	-
Great Sodus Bay Harbor, NY 1941 R&H Act	1963	Aug-77	-	-
Hamlin Beach Harbor, NY 1968 R&H Act	1973	Jan-90	72,052	-
Hammondsport, Oswego River Basin, NY 1941 FC Act	1951	Nov-83	29,000	-
Huron Harbor, NY 1962 R&H Act ³	1963	Jan-90	-	-
Ithaca, NY – Cascadilla Creek 1941 FC Act	1950	Aug-77	8,159	-
Ithaca, NY – Fall Creek 1941 FC Act	1950	Aug-77	12,300	-
Lorain Harbor, OH – Sec. 107, R&H Act 1960 (Portion of small boat basin)	1998	Oct-96	-	-
Lorain Harbor, OH 1960 R&H Act, modified by 1965 R&H Act ⁴	1966	Jan-90	-	-
Maumee River, above Toledo, OH 1872 Act	1971 ²	Nov-77	12,000	-
Ottawa River, OH (Blanchard)	-	Apr -02	-	-

¹ Extension of guide pier only: other improvements completed.

² Annual Report For Detroit District.

³ Breakwater.

⁴ Uncompleted portion.

TABLE 20-G DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended
Morristown Harbor, NY 1927 R&H Act (Portion north of northern boundary of Morris St. extended.	1949	Oct-96	-	-
Niagara River, Compensating Works, 1930 R&H Act	1964	Aug-77	-	-
Ogdensburg Harbor, NY 1935 R&H Act	1986	Nov-86	-	-
Ogdensburg Harbor, NY R&H Acts 1910, 1935 (Portion from southernmost alignment of Rte 68 Bridge upstream to northern alignment of Lake St. Bridge)	1987	Oct-96	-	-
Oswego Harbor, NY 1930 R&H Act	1963	Jan-90	-	-
Oswego Harbor, NY 1940 R&H Act ⁵	1963	May-81	-	-
Port Bay, NY 1950 R&H Act	-	Jan-90	-	-
Red Creek, NY 1966 FC Act	1975	Nov-86	361,241	-
Sackets Harbor, NY 1945 R&H Act	1948	May-81	19,010	-
Selkirk Shores State Park, OH 1954 R&H Act ³	1963	Jan-90	-	-
Sheffield Lake Community Park, Oh 1962 R&H Act	-	Aug-77	-	-
Watkins Glenn, NY 1941 FC Act	1958	Aug-77	43,182	-
White City Park, OH 1954 R&H Act	-	Jan-90	-	-

⁵ Deepening of west outer harbor, other improvements completed.

TABLE 20 - H FLOOD CONTROL AND COASTAL EMERGENCIES

ACTIVITY	FEDERAL COST	CONTRIBUTED COST
Disaster Preparedness	\$ 187,782	
Emergency Operations	4,132	
Rehabilitation	120	
Advance Measures	145,294	\$20,540

TABLE 20-I GENERAL INVESTIGATIONS

COLLECTION AND STUDY OF BASIC DATA

<u>STUDY</u>	<u>GENERAL INVESTIGATIONS</u>	<u>OPERATIONS & MAINTENANCE</u>	<u>NON-FEDERAL</u>
Surveillance of Northern Boundary Waters	\$98,201	\$650,290	
Flood Plain Mgmt Services	38,698		
Technical Services	11,815		
Quick Responses	1,968		
SS - Smokes Creek, Lackawanna, NY	6,308		
SS - Village of Eden, OH	1,484		
SS - NYS Barge Canal Failure	1,055		

PRE-CONSTRUCTION ENGINEERING AND DESIGN

Onondaga Lake NY PL 101-596	978		(485)
Ashtabula River Environmental Dredging	584,933		172,489

SURVEYS

FLOOD DAMAGE PREVENTION STUDIES

Gulley Brook, OH	37,928		
Oneida Lake, NY	450		

SHORELINE PROTECTION STUDIES

Hamlin & Lakeside Beach, NY	883		
Western Lake Erie Basin, OH	99,075		

SPECIAL STUDIES

Onondaga Lake NY PL 101-596	477,665		
Buffalo River Environmental Dredging, NY	30,904		
Woodtick Peninsula and Toledo Harbor, OH	13,706		
Arcola Creek	59,988		

MISCELLANEOUS ACTIVITIES

Special Investigations	31,610		
Review of FERC Licenses	3,940		
Interagency Water Resource	10,040		
Natural Estuary Studies	3,684		
N. American Waterfowl Mgmt Plan	2,174		

TABLE 20-I GENERAL INVESTIGATIONS (Cont'd)

COORDINATION WITH OTHER GOVERNMENT AGENCIES AND NON-FEDERAL INTERESTS

	<u>GENERAL INVESTIGATIONS</u>	<u>OPERATIONS & MAINTENANCE</u>	<u>NON- FEDERAL</u>
COOP with Other Water Agencies	1,920		
Great Lakes Remedial Action	430,956		
Great Lakes Remedial Action Program (Sec. 104)	36,646		
PAS Negotiation Funds	37,509		15,075
 PAS - NY - Amherst Soil Study	 27,913		 3,212
PAS - NY - Barge Canal Embank Analysis	6,876		6,522
PAS - NY- Union Ship Canal Struc. Analysis	4,328		5,341

TABLE 20-J WORK UNDER SPECIAL AUTHORITIES

Navigation Work Pursuant to Sec. 107, PL 86-645, as amended

<u>Study Identification</u>	<u>Federal Cost</u>	<u>Non-Federal Cost</u>
Buffalo Inner Harbor, NY	\$ 31,310	
Erie Basin Marina, Buffalo, NY	(311)	
Fairport Harbor, Lake County, OH	1,898	
Lake Erie Sturgeon Point, Evans, NY	14,839	
Lake Ontario Commercial Truck Port, NY	4,033	
Mentor-on-the-Lake, OH	25,678	
Put-In-Bay Harbor, Put-In-Bay, OH	3,358	
Rochester Harbor, Rochester, NY	78	94
Walnut Creek Access Area – Erie Co., PA	23,732	
West Side Rowing Club, Buffalo, NY	103	
Section 107 Coordination Account	16,454	
Syracuse Inner Harbor and Onondaga Creek, NY	15,959	

Navigation Work Pursuant to Sec. 111, PL 86-645 as amended of the 1968 River & Harbor Act, as amended

<u>Study Identification</u>	<u>Federal Cost</u>	<u>Non-Federal Cost</u>
Lorain Harbor, OH	2,406	

Shore Protection Activities Pursuant to Sec. 103 of the 1962 River and Harbor Act, as amended

<u>Study Identification</u>	<u>Federal Cost</u>	<u>Non-Federal Cost</u>
Krull Park, NY	5,972	
Lake Erie, Athol Springs, Hamburg, NY	22,714	2,164
Lake Erie, Old Lakeshore Road, Hamburg, NY	5,402	
Lake Erie, Painesville, OH	8,955	3,648
Lake Ontario, NYS Rt. 425, Wilson, NY	(2,267)	
Section 103 Coordination Account	5,086	
Sylvan Beach Breakwater, Oneida Lake, NY	86,556	70,749

Flood Control Projects Pursuant to Sec. 205 of the 1954 Flood Control Act, as amended

<u>Study Identification</u>	<u>Federal Cost</u>	<u>Non-Federal Cost</u>
Butternut Creek, Onondaga County, NY	27,463	
Cazenovia Creek, NY	47,162	
Cross Lake, NY	(351)	351
Ellicott Creek, Lancaster, NY	32,297	
Ellicott Creek, Lehn Spring, NY	42,523	
Irondequoit Creek, Penfield, NY	96,966	41,741
Scajaquada Creek, Depew, NY	102	
Swan Creek, Toledo, OH	15,136	

TABLE 20-J WORK UNDER SPECIAL AUTHORITIES (Cont'd)

Flood Control Work Pursuant to Sec. 14 of the 1946 Flood Control Act, as amended

<u>Study Identification</u>	<u>Federal Cost</u>	<u>Non-Federal Cost</u>
Cayuga Creek, Depew, NY	211	
Conneaut Creek, I-90 Bridge, Kingsville, OH	13,212	
Cuyahoga River, Bath Road, Akron, OH	5,738	
Grand River, SR 84 Bridge, Painesville, OH	(2,292)	
Hospice of Western Reserve, OH	96,492	
Lake Ontario, Albion Water, NY	44,446	
Middle Bass Island, Deist Road, OH	(106)	
Minnick Road, Tonawanda Creek, NY	29,264	
Niagara River, Tonawanda, NY	725,244	1,285,972
Ottawa River, Shoreland Drive, Toledo, OH	24,607	
Ransom Creek, Hopkins Rd., Amherst, NY	88,668	
Section 14 Coordination Account	14,916	
Sewerline, Canadaway Creek, Fredonia, NY	16,568	
Sodus Point Lighthouse, NY		1,347
Tonawanda Creek, Niagara Co, NY	31,264	63,000
Tonawanda Creek, Riddle Road, NY	(2,292)	
Lake Erie, Camp Pioneer, Angola, NY	14,966	

Project Modification to Improve Environment Pursuant to Sec. 1135, PL 99-662

<u>Study Identification</u>	<u>Federal Cost</u>	<u>Non-Federal Cost</u>
Buffalo River Habitat	20,787	
Conneaut Creek, Sea Lamprey, OH	1,340	
Conneaut Harbor, East State Park, OH	6,933	
Coordination Account Funds	14,798	
East Harbor State Park, OH	33,245	
Gull Point, Presque Isle, Erie, PA	834	
Lake Neatahwanta, Fulton, NY	3,948	
Preliminary Restoration Plan	725	
Rochester Navigation Channel, NY	102,199	
Sheldon's Marsh, Lake Erie	12,647	
Smokes Creek, Erie County, NY	1,428	
Times Beach Environmental Improvement, NY	89,563	

TABLE 20-J WORK UNDER SPECIAL AUTHORITIES (Cont'd)**Aquatic Ecosystem Restoration Pursuant to Sec. 206, PL 104-303**

<u>Study Identification</u>	<u>Federal Cost</u>	<u>Non-Federal Cost</u>
Buffalo State College Wetlands, NY	6,301	
Conewango Valley, NY	21,996	
Jamestown Reservoir, NY	8,904	
Johnson Pond, Lyndonville, NY	971	
Little Beaver Island Wetlands, NY	1,997	
Middle Cuyohoga River, Monroe Falls, Cuyahoga, OH	2,777	
Middle Cuyohoga River, Portage County	2,419	
Oak Orchard Creek, Orleans County, NY	1,047	
Preliminary Restoration Plans	811	
Sec 206 Coordination Account Funds	10,156	
South Park Lane	41,916	
Springville Dam, NY	9,955	
Syracuse Lakefront, Onondaga Lake, NY	5,796	

Shoreline Erosion Control Development and Demo Pursuant to PL 104-303 – Federal Cost \$49,098

BUFFALO, NY DISTRICT

TABLE 20-K INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

<u>NAME OF PROJECT</u>	<u>DATE INSPECTED</u>
<u>NEW YORK</u>	
Bird Island Pier, Rehabilitation Project, Buffalo, NY	Aug 2003
Blasdell Creek, Advance Measures Program, Local Flood Protection Project, Hamburg, NY	Aug 2003
Canadaway Creek, Streambank Erosion Project, Dunkirk, NY	May 2003
Canadea Sewage Treatment Plant, Beach Protection Project, Houghton, NY	Aug 2003
Catherine Creek, Local Flood Protection Project, Montour Falls, NY	Jul 2003
Cattaraugus Creek, Flood Protection Project, Arcade, NY	Aug 2003
Cattaraugus Creek Harbor, Flood Protection Project, Irving, NY	Sep 2003
Cayuga Inlet, Flood Protection Project, Ithaca, NY	Jun 2003
Cazenovia Creek, Flood Protection Project, West Seneca, NY	Aug 2003
Conesus Lake, Flood Protection Project, Livonia, NY	Jul 2003
Dry Creek, Flood Protection Project, Moravia, NY	Jun 2003
Ellicott Creek, Clearing and Snagging, Amherst, NY	Jun 2003
Ellicott Creek, Flood Control Project, Tonawanda, NY	Jun 2003
Fredonia Sewage Treatment Plant, Shoreline Protection Project, NY	May 2003
Genesee River, Local Flood Protection Project, Wellsville, NY	Aug 2003
Genesee River, Rogers Cemetery, Emergency Bank Protection Project, Amity, NY	Aug 2003
Genesee River, Rogers Cemetery, Flood Protection Project, Amity, NY	Aug 2003
Hammondsport, Glenn Brook, Clearing and Snagging, Hammondsport, NY	Jul 2003
Kashong Creek, Emergency Bank Protection Project, Geneva, NY	Mar 2003
Keshequa Creek, Emergency Bank Protection and Clearing and Snagging Projects, Nunda, NY	Jul 2003
Keuka Lake Outlet, Flood Control Project, Penn-Yan, NY	Jul 2003
Lake Erie Shoreline, Emergency Shore Protection Project, St. Columbans On-the-Lake, Silver Creek, NY	May 2003
Marsh Creek, Flood Protection Project, Geneva, NY	Mar 2003
Mill Creek, Flood Protection Project, Moravia, NY	Jun 2003
Nine Mile Creek, Local Flood Protection Project, Camillus, NY	Jun 2003
North Branch of Van Campen Creek, Flood Protection Project, Friendship, NY	Aug 2003
Oak Orchard Beach, Shore Protection, Lake Ontario, Kendall, NY	Sep 2003
Oatka Creek, Flood Protection Project, NY	Jun 2003
Onondaga Creek, Flood Control, Nedrow, NY	Jul 2003
Onondaga Creek, Flood Control, Syracuse, NY	Jul 2003
Onondaga Dam, Flood Control, Syracuse, NY	Jul 2003
Owasco Inlet, Flood Protection Project, Moravia, NY	Jun 2003
Owasco Outlet, Clearing and Snagging Project, Auburn, NY	Jul 2003
Owasco Outlet, Flood Protection Project, Port Byron, NY	Jun 2003
Rochester Harbor, Wave Surge Reduction, Rochester, NY	May 2003
Route 20A Bridge, Emergency Bank Protection Project, Geneseo, NY	Nov 2002
Salmon River, Flood Protection Project, Malone, NY	Nov 2002
Scajaquada Creek, Flood Protection Project, Cheektowaga, NY	Aug 2003
Seneca and Cayuga Canal Village, Stream Bank Erosion Control Project, Seneca Falls, NY	Mar 2003
Seneca Lake, Beach Protection, Wakins Glenn, NY	Jun 2003
Shequaga Creek, Local Flood Protection Project, Montour Falls, NY	Jul 2003
Shequaga Falls, Local Flood Protection Project, Montour Falls, NY	Jul 2003
Smokes Creek, Flood Control Project, Lackawanna, NY	Aug 2003
Tonawanda Creek, Local Flood Protection Project, Batavia, NY	May 2003
Trinity Church, Stream Bank Erosion Control Project, Village of Seneca Falls, NY	Mar 2003
Van Buren Point, Advanced Measures Project, Portland, NY	May 2003
Wendt Beach Park, Emergency Shore Protection Project, Evans, NY	May 2003

TABLE 20-K INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

<u>NAME OF PROJECT</u>	<u>DATE INSPECTED</u>
<u>OHIO</u>	
Baldwin Road, Streambank Erosion Control Project, Kirtland Hills, OH	Nov 2002
Blanchard River, Emergency Streambank Protection, State Route 15, Ottawa, OH	Dec 2002
Chillicothe Road, Flood Control Project, Kirtland, OH	Nov 2002
Confined Disposal Facility #12, Cleveland, OH	Dec 2002
Cuyahoga River, Emergency Streambank Protection Project, Akron, OH	Dec 2002
Eastlake, Emergency Flood Protection Advance Project, Eastlake, OH	Dec 2002
Euclid Creek, Emergency Stream Bank Rehabilitation, Cleveland, OH	Nov 2002
Euclid General Hospital, Emergency Shoreline Protection, Euclid, OH	Jan 2003
Hospice of the Western Reserve, Emergency Shoreline Protection, Cleveland, OH	Jan 2003
Lake Erie Shore Protection, Oregon, OH	Nov 2002
Lakeshore Park, Lake Erie, Shore Protection Project, Ashtabula, OH	Nov 2002
Lakeshore Protection Oregon, Flood Control Project, Oregon, OH	Nov 2002
Lorain Small Boat Harbor, Navigation and Recreation, Lorain, OH	Nov 2002
Main Sanitary Sewer Line, Emergency Streambank Protection Project, Akron, OH	Dec 2002
Maumee Bay State Park, Cooperative Beach Erosion Control, Lucas County, OH	Dec 2002
Mayfield Road, Streambank Protection, Village of Gates Mills, OH	Nov 2002
Municipal Water Supply, Emergency Protection Project, Oregon, OH	Nov 2002
North Coast Harbor/Pier 34 Harbor-of-Refuge Project, Cleveland, OH	Dec 2002
North Portage Path Road, Emergency Streambank Protection Project, Akron, OH	Dec 2002
Oak Harbor, Flood Protection Project, OH	Dec 2002
Sand Road, Emergency Shore Protection, Catawba Island Township, Ottawa County, OH	Dec 2002
State Route 163, Lake Erie, Shore Protection, Marblehead, OH	Dec 2002
<u>PENNSYLVANIA</u>	
Flagship Niagara, Navigation and Recreation Project, Lake Erie, Erie, PA	Sep 2003
Little Elk Creek, Beach Protection Project, Girard, PA	Sep 2003
Presque Isle, Flood Protection Project, Presque Isle, PA	Aug 2003

Inspections of completed flood control works for compliance with Federal requirements were made during the period at a cost of \$303,351. This includes updating the hydraulics and hydrology of various local flood control projects. Total cost to Sep. 30, 2003 is \$4,455,086.

DETROIT, MI DISTRICT

The District is composed of the upper and lower peninsulas of Michigan and portions of Indiana, Wisconsin and Minnesota, which border the lakes. It includes U.S. waters of Lakes Superior, Michigan, Huron, St. Clair and western Lake Erie. Unless otherwise indicated, all depths stated in this report are referred to low water datum as follows: Lake Superior, 601.1 feet; Lake Michigan-Huron, 577.5 feet; Lake Erie, 569.2 feet; and Lake St. Clair, 572.3 feet. These elevations are in feet above the mean water level at Rimouski, Quebec -- International Great Lakes Datum, 1985 (IGLD 1985).

The IGLD 1985 is a datum or reference system used to define water levels within the Great Lakes - St. Lawrence River system. This datum was implemented in January 1992, officially replacing IGLD 1955. At the time IGLD 1955 was established, it was recognized that this datum would have to be periodically revised due to isostatic rebound. Isostatic rebound is the gradual rising or bouncing back of the earth's crust from the weight of the glaciers that covered the Great Lakes region during the last ice age.

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NAVIGATION

1. ALPENA HARBOR, MI

Location. At mouth of Thunder Bay River which empties into Thunder Bay, Lake Huron. Harbor is 100 miles southeast of Cheboygan Harbor, MI. River has its source in Montmorency and Alpena Counties, MI. (See NOAA Nautical Chart 14864.)

Previous Project. For details see page 1957 of Annual Report for 1915 and page 1548 of Annual Report for 1938.

Existing Project. Provides for a bay channel 200 feet wide and 25 feet deep from deep water in Thunder Bay to a point 300 feet lakeward of the Alpena Light; thence an entrance channel 24 feet deep, narrowing to a width of 100 feet at a point 700 feet upstream from the light; a river channel 100 feet wide, 23 feet deep to Second Avenue Bridge; thence 18.5 feet deep and 75 feet wide for 1,600 feet to upper limit of Federal project; a turning basin at upstream end of project,

basin at river mouth 19 feet deep, trapezoidal in shape, with a maximum width of 700 feet including the channel width and a maximum length of 900 feet along the channel line, including removal of existing rubble breakwater; and a breakwater about 550 feet long paralleling lakeward side of new turning basin. Work authorized by the 1965 River and Harbor Act, which consists of the proposed turning basin and breakwater reconfiguration, was deauthorized by the Water Resources Development Act (WRDA) OF 1986; Public Law (PL) 99-662, November 17, 1986, 99th Congress, Title X.

Local Cooperation. Fully complied with.

Terminal Facilities. Several commercial docks along Thunder Bay River used primarily for receipt of coal and petroleum products. Also a municipal marina basin about 0.25 mile southwest of river mouth. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys and miscellaneous inspections and reports performed by Government forces cost \$3,149.

DETROIT, MI DISTRICT

Existing project was completed in 1939. The modification of existing project at Alpena Harbor, as authorized by the 1965 River and Harbor Act, was reclassified into an inactive status May 22, 1969 based on an unfavorable benefit-cost ratio. In 1975 the modification was recommended and reviewed for deauthorization, which was withdrawn by Congressional Resolution the same year. Subsequently, the work authorized by the 1965 Act was deauthorized by the WRDA of 1986. Project features are in excellent condition. Total cost of the existing project to end of FY was \$2,385,111, of which \$337,394 was for new work and \$2,047,717 for maintenance.

2. ARCADIA HARBOR, MI

Location. On east shore of Lake Michigan, 193 miles northeasterly from Chicago, IL, and 15 miles northerly from Manistee, MI. (See NOAA Nautical Chart 14907.)

Existing Project. Provided for maintenance dredging of the existing harbor built by private interests, for a period of five years. The five years covered by this project were the calendar years 1905 to 1909, inclusive. Funds were also appropriated and maintenance was performed in calendar years 1911, 1912, 1913 and 1915, inclusive. There is at present no approved project for the improvement of this harbor. (See Table 21-B for authorizing legislation.)

Local Cooperation. None required.

Terminal Facilities. Dock facilities are considered adequate for existing recreational traffic.

Operations During Fiscal Year. Maintenance: Condition surveys and miscellaneous inspections and reports performed by Government forces cost \$34,533. Safety maintenance performed by hired labor cost \$3,893. An adjustment of \$1,397 in contract costs and -392 in cubic yards for removal of shoal material was made in maintenance dredging completed last FY. A contract for maintenance dredging was awarded and completed this FY, removing 3,762 cubic yards of shoal material at a cost of \$33,246. Engineering, design, surveys, and supervision and administration cost \$56,960.

Existing project was completed in 1909. Varying depths of 5-12 feet exist in the channel at present. Maintenance of the harbor is based on providing a 9-foot depth. Piers and revetments are in good condition. Total cost of the existing project to end of FY was \$5,645,667.

3. ASHLAND HARBOR, WI

Location. At head of Chequamegon Bay, on south shore of Lake Superior, about 65 miles east of Duluth, MN. (See NOAA Nautical Chart 14974.)

Existing Project. A west channel 20 and 21 feet deep and an east basin 25 and 27 feet deep, both all protected by an 8,000-foot breakwater. For additional details see page 1008 of Annual Report for 1965. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. City of Ashland owns 4,150 feet of waterfront for future public needs. Wharves for handling coal, ore, limestone, logs and pulpwood are served by railroads. Facilities are considered adequate for existing commerce. Handling of ore and logs has been discontinued for the present.

Operations During Fiscal Year. Maintenance: Condition surveys and miscellaneous inspections and reports performed by Government forces cost \$7,017. Repairs to the Breakwater, Sections B & C1, were performed using the U.S. Derrickbarge SCHWARTZ at a cost of \$164,778. Real estate and supervision and administration cost \$12,913.

Work authorized prior to 1960 Act was completed in 1950. Work authorized by 1960 Act was completed in November 1962. Navigation structures are in fair condition. Total cost of the existing project to end of FY was \$6,279,081, of which \$1,695,645 was for new work and \$4,583,436 was for maintenance.

4. BAY PORT HARBOR, MI

Location. On Wild Fowl Bay on east shore of Saginaw Bay about 10 miles south of Caseville, MI. (See NOAA Nautical Chart 14863.)

Existing Project. Provides for a channel 6 feet deep and 50 feet wide extending 5,750 feet from 6-foot contour in Saginaw Bay to intersection of private service channels to be dredged by local interests. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Several small wharves used primarily by commercial fisherman. Facilities are considered adequate for existing commerce.

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Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces cost \$59,216. Engineering, design, and real estate for maintenance contract to be awarded next FY cost \$51,924.

Existing project was completed in 1967. Total cost of the existing project to end of FY was \$917,292, of which \$93,597 was for new work and \$823,695 for maintenance (which includes \$137,399 contributed funds).

5. BIG SUAMICO RIVER, WI

Location. A small stream which flows easterly into Green Bay, an arm of Lake Michigan. Mouth of the river is about 8 miles north of Green Bay Harbor, and about 44 miles southwesterly from Menominee Harbor, MI and WI. (See NOAA Nautical Chart 14910.)

Existing Project. An entrance channel 8 feet deep which extends from that depth in Green Bay to 1,800 feet above the river mouth, with widths of 100 feet in bay and 60 feet in river; total length of channel is about 3,700 feet. (See Table 21-B for authorizing legislation.)

Local Cooperation. None required.

Terminal facilities. Small private wharves along lower 1.5 miles of river, used by local fishing interests. Ample space is available for additional fishing wharves when required. Facilities considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost \$18,242. Supervision and administration to closeout maintenance dredging contract completed last FY cost \$5,028.

Existing project was completed in 1938. Dredging channel was started in September 1938 and completed in November 1938. Total cost of the existing project to end of FY was \$1,942,168, of which \$20,243 was for new work and \$1,921,925 for maintenance.

6. BLACK RIVER (PORT HURON), MI

Location. This river has its source in the northern part of Sanilac County, MI, is about 60 miles long, and

flows in a southeasterly direction into the St. Clair River. (See NOAA Nautical Chart 14852.)

Previous Project. For details see page 1441 of Annual Report for 1916, and page 1554 of Annual Report for 1938.

Existing Project. Provides for a channel 20 feet deep from deep water in St. Clair River to the Grand Trunk Western Railroad Bridge, 160 feet wide at the mouth, decreasing to 100 feet, about 800 feet from the mouth, thence 100 feet wide for 2,600 feet, decreasing to 75 feet for a distance of 4,800 feet; widening two bends to 100 feet, one at the foot of 12th Street, and the other below the Grand Trunk Western Railroad Bridge; for a settling basin 75 feet wide and 20 feet deep, beginning at the Grand Trunk Western Railroad Bridge in Port Huron and extending upstream a distance of about 2,300 feet; and then for a distance of 2.6 miles as a 100-foot wide river channel, 8 feet deep to the I-94 bridge where it decreases to 6 feet deep and continues to the vicinity of the Black River Drainage Canal with suitable widening where required at bends in the channel. The project modification authorized by the Act of August 30, 1935, is considered to be inactive and is excluded from the foregoing cost for new work. The cost of this modification was last revised in 1954 and was estimated to be \$194,000 exclusive of \$194,000 to be contributed by local interests. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. There are docks on both sides of Black River near its mouth, and between these docks and the upper limit of improvement there are 5 other docks varying in length from 100 to 500 feet. All docks are privately owned and are restricted to the use of the owners. The facilities are considered adequate for existing commerce. Public recreational boating facilities constructed by the State and local agencies are available, as are privately owned and operated marinas.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces cost \$36,784. A contract was awarded this FY in the amount of \$502,720 for maintenance dredging. The contract was 40% complete at the end of the FY, removing approximately 16,000 cubic yards of shoal material at a cost of \$200,000. Engineering, design, surveys, and supervision and administration cost of \$91,930.

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All work, except that authorized by Act of August 30, 1935, and the latest modification, has been completed. Total cost of the existing project to end of FY was \$2,785,047, of which \$830,165 was for new work (includes \$349,921 contributed funds) and \$1,954,882 for maintenance.

7. BLACK RIVER HARBOR (UPPER PENINSULA), MI

Location. At mouth of Black River on south shore of Lake Superior 39 miles westerly from Ontonagon, MI, and 47 miles easterly from Ashland, WI. (See NOAA Nautical Chart 14965.)

Existing Project. Two converging breakwaters, an entrance channel between breakwaters, an inner channel, and an irregular harbor basin. For additional details see page 1092 of Annual Report for 1966. Project depths are 12 feet in the approach channel and 8 feet in the river channel and basin. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with. Local interests furnished easements on 0.85 acre of land.

Terminal Facilities. Wharves constructed on both sides of river. Wharf on east bank has frontage of 400 feet, on west bank, a frontage of 750 feet.

Operations During Fiscal Year. Maintenance: Miscellaneous inspections and reports performed by Government forces cost \$2,997. Breakwater repairs were performed using the U.S. Derrick barge SCHWARTZ at a cost of \$16,170. Real estate activities cost \$9,978.

Project was completed in June 1958. Navigation structures are in good condition. Total cost of the existing project to end of FY was \$1,544,550, of which \$383,350 was for new work and \$1,161,200 was for maintenance. The new work cost does not include \$30,000 contributed funds.

8. BOLLES HARBOR, MI

Location. On west shore of Lake Erie at mouth of La Plaisance Creek 7 miles southwest of Monroe, MI. (See NOAA Nautical Chart 14846.)

Existing project. Provides for an entrance channel in Lake Erie, 8 feet deep and 80 feet wide from deep water to a point opposite the outer end of existing jetty,

thence widening to 100 feet at creek mouth; an access channel in La Plaisance Creek, 6 feet deep and 100 feet wide at the mouth widening to 120 feet and extending to the first bend, thence narrowing to 50 feet wide and continuing at that width to the La Plaisance Road bridge; a steel sheet pile revetment, about 200 feet long, located along Michigan State Conservation Department property on west side of channel at creek mouth. Project also provides for inclusion of existing 400-foot long steel sheet pile jetty constructed by Michigan State Waterways Commission at the mouth of La Plaisance Creek. (See Table 21-B for authorizing legislation.)

Local cooperation. Fully complied with.

Terminal facilities. The Monroe Boat Club and three marinas provide facilities adequate for existing recreational boat traffic. There is also a public launching ramp and parking area at the Conservation Department fishing site at creek mouth.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost \$16,694.

The existing project was completed in 1970. (Adequate depths exist over the project length except for the upstream 800 feet.) Facilities are in good condition. Total cost of the existing project to end of FY was \$4,424,025, of which \$472,916 was for new work (includes \$255,000 contributed funds) and \$3,951,109 for maintenance.

9. CHARLEVOIX HARBOR, MI

Location. On east shore of Lake Michigan, 276 miles northeasterly from Chicago, IL, and 75 miles northerly from Frankfort, MI. (See NOAA Nautical Chart 14942.)

Existing Project. A channel 24 feet deep in Lake Michigan and a river channel 23 feet deep in the lower and upper channels connecting Lake Michigan with Lake Charlevoix via Round Lake. The channels are protected where needed by piers and revetments. For additional details see page 1476 of Annual Report for 1962. (See Table 21-B for authorizing legislation.) Section 25 of the WRDA of 1988 provides authorization pertaining to the South Pier to Charlevoix Harbor. It states, "The Secretary shall take such action as may be necessary to restore recreational uses established prior to May 1, 1988, or provide comparable recreation uses at the South Pier to Charlevoix Harbor project, Charlevoix, Michigan in

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order to mitigate any adverse impact on recreational uses resulting from reconstruction of the South Pier..."

Local Cooperation. None required except the latest project modification is subject to the following: Provide without cost to the United States, all lands, easements, and rights-of-ways required for construction and subsequent maintenance of the modified project upon the request of the Chief of Engineers, including suitable areas determined by the Chief of Engineers to be required in the general public interest for initial and subsequent disposal of excavated materials and any necessary retaining dikes, bulkheads, and embankments, therefore, or the cost of such retaining works; hold and save the United States free from damages due to the constructing and maintenance of the modified project, except for damages due to the fault or negligence of the United States or its contractors; provide and maintain without cost to the United States depths in berthing areas and local access channels serving the terminal commensurate with the depths provided in the related project areas; accomplish, without cost to the United States, such alterations of submarine utility crossing as are required by the modified project; establish regulations prohibiting discharge of pollutants into the waters of the harbor by users thereof which regulations shall be in accordance with applicable laws or regulations of Federal, State and local authorities responsible for pollution prevention and control; if acquiring lands, easements and rights-of-ways for construction of the project, local interests will comply with the applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1971; PL 91-646, approved January 2, 1971; contribute all costs in excess of \$1,000,000 should the total cost of construction of the general navigation facilities exceed that amount, in accordance with provisions of Section 107 of the 1960 River and Harbor Act, as amended. The total first cost of construction (1975) is estimated at \$625,000.

Terminal Facilities. Several small landing places in Round Lake at Charlevoix for handling fish and miscellaneous commodities, a wharf for petroleum products at west end of Lake Charlevoix, and coal wharves at Advance and Boyne City. Charlevoix, Boyne City, and East Jordan provide public docks for small craft. Facilities considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost \$45,741. Real estate and minor safety repairs performed by hired labor cost \$17,768.

Existing project was completed in 1939 except for the latest modification. Navigation structures are in good to fair condition with miscellaneous repairs scheduled in future years. Total cost of the existing project to end of FY was \$12,197,171, of which \$180,623 was for new work, \$10,887,152 for maintenance (Bank Stabilization \$46,352), and \$1,129,396 for rehabilitation.

10. CLINTON RIVER, MI

Location. Has its sources in Oakland County, MI, flows easterly about 60 miles and empties into Anchor Bay in northwestern part of Lake St. Clair. (See NOAA Nautical Chart 14850.)

Previous Project. For details see page 1958 of Annual Report for 1915, and page 1556 of Annual Report for 1938.

Existing Project. An entrance channel in Anchor Bay 8 feet deep, 300 feet wide at 8-foot depth contour in the bay, gradually decreasing to 50 feet wide at about 1,000 feet upstream from mouth of Clinton River, a length of about 4,600 feet; a channel 8 feet deep and 50 feet wide in the river about 38,700 feet long from entrance channel upstream to Mt. Clemens at Cass Avenue; closing old channel and making a cutoff at Shoemakers Bend; closing Catfish Channel; construction of revetments as needed in the river; and a harbor basin, 5 feet deep and 11 acres in area at entrance along bay channel, protected by breakwaters on north and south sides. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. River is used exclusively by recreational craft. There are numerous public and private wharves along the river below the city. They are considered adequate.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost \$5,777. Maintenance of confined disposal facility performed by hired labor cost \$3,532.

Existing project was completed in 1966. Total cost of the existing project to end of FY was \$8,855,234, of which \$549,798 was for new work (includes \$289,752 contributed funds), \$4,509,256 for maintenance and \$3,796,180 for diked disposal.

11. DETROIT RIVER, MI

Location. One of the Great Lakes connecting channels, 31 miles long, flows south from Lake St. Clair to Lake Erie. (See NOAA Nautical Chart 14848.)

Previous Project. For details see page 1958 of Annual Report for 1915, and page 1541 of Annual Report for 1938.

Existing Project. Improving Detroit River main channels to provide 25.5-foot draft navigation; improving certain auxiliary and side channels; and construction of various water level and crosscurrent control structures. Details are in accompanying Table 21-H. Project depths are referred to local low water datum planes which correspond to low water datums for Lakes St. Clair and Erie, 572.3 and 569.2 feet above mean water level at Rimouski, Quebec, IGLD 1985. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with. No local cooperation is required for modifications authorized by Acts of July 1946 and March 1956. The uncompleted portion of the project authorized by the 1946 and the 1956 R & H Acts, construction of the Compensating Works, with the uncompleted portion of the Trenton Channel modification approved Aug. 13, 1968, were deauthorized Dec. 31, 1989, in accordance with Section 1001 of the WRDA of 1986 (PL 99-662).

Terminal Facilities. Numerous commercial installations used for handling coal, iron ore, limestone, steel products, petroleum products, and other items such as overseas general cargo. Detail on actual port and harbor facilities is in Port Series No. 45 (revised 1984) prepared and published by the Water Resources Support Center. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, confined disposal facility monitoring, support of water control center, and miscellaneous inspections and reports performed by Government forces and contract cost \$1,054,507. Location and removal of obstructions was performed using the U.S. Cranebarge VELER and the U.S. Survey Vessel WHEELER at a cost of \$2,025,676. Maintenance of disposal area performed by hired labor cost \$64,247. Engineering and design for closure of dikes at Cell #3 at Pointe Mouillee was initiated at a cost of \$66,883. The contract awarded last FY for maintenance dredging the East Outer Lower Livingstone was completed this FY, removing approximately 16,030 cubic yards of shoal material at a

cost of \$421,710. Engineering, design, surveys, real estate, and supervision and administration cost \$189,416.

Latest modification of connecting channels project in the Detroit River is complete except for compensating works. Pertinent data concerning channels covered by project at end of FY are set forth in Table 21-H. Total cost of the existing project to end of FY was \$258,138,550, of which \$76,877,357 was for new work (\$75,346,669 regular funds and \$1,530,688 Public Works Funds), \$138,790,608 (includes \$361,235 Section 150 contributed funds) for maintenance and \$42,470,585 for diked disposal.

12. DULUTH-SUPERIOR HARBOR, MN AND WI

Location. At extreme western end of Lake Superior. Cities of Duluth, MN, and Superior, WI, are on north and south sides, respectively. (See NOAA Nautical Chart 14975.)

Previous Projects. See page 1246 of Annual Report for 1962.

Existing Project. Provides for rebuilding canal piers at Duluth entry, replacement or construction of piers and breakwater at Superior entry and dredging approaches and channels within harbor, St. Louis Bay, and St. Louis River. Channels vary in depth from 32 to 28 feet in entrances, are 27 feet deep in iron-ore route channels, and are from 20 to 23 feet deep in inner channels. (See Table 21-B for authorizing legislation.)

For details of authorized channel dimensions and dimensions of structures, see pages 1246 and 1247 of Annual Report for 1962 and page 1011 of Annual Report for 1965. Portion of project for deepening Twenty-first Avenue West channel was deauthorized Dec. 31, 1989, in accordance with Section 1001 of the WRDA of 1986 (PL 99-662).

The WRDA of 1986 authorized modifications to the project to deepen the western portions of North and South Channels, the entire Upper Channel and the Minnesota Channel to 27 feet LWD; widen the Cross Channel to provide a minimum turning basin of 1,500 feet; widen the bend at the Arrowhead Bascule Bridge to 600 feet; and construct an upland confined disposal facility. The current recommended plan involves only the mechanical dredging of the Cross Channel Turning Basin with disposal at the Erie Pier CDF. The remainder of the project is now unscheduled.

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Local Cooperation. Fully complied with for completed portion of project. Local cooperation items for the newly authorized project in the WRDA of 1986 (PL 99-662), are as described in House Document 150, 86th Congress, 1st Session and also includes, as a result of PL 99-662, construction cost sharing.

Terminal Facilities. There are 113 docks or terminals including some 54 major ones; all but one privately owned. Facilities for handling iron ore, coal, limestone, petroleum, steel and scrap iron, cement, general cargo, and grain are believed adequate for most existing commerce.

Operations During Fiscal Year. Maintenance: Operation and maintenance of the museum performed by Government forces and contract cost \$523,988. Operation and maintenance of service facilities and park pier performed by hired labor cost \$186,205. Condition surveys, environmental studies, confined disposal facility monitoring, support of water control center, and miscellaneous inspections and reports performed by Government forces and contract cost \$493,726. Safety repairs performed by hired labor cost \$58,688. Duluth and Superior Entry Breakwater repairs were performed using the U.S. Derrickbarge SCHWARTZ at a cost of \$401,670. Maintenance of the disposal area performed by hired labor cost \$70,922. Engineering and design for repair of the Superior Entry, South Pier (Phase II) continued at a cost of \$29,446. An adjustment of -\$8,912 was made in contract costs and -19,033 in cubic yards for FY01 maintenance dredging completed last FY. The contract awarded last FY for maintenance dredging was completed this FY, removing 9,628 cubic yards of shoal material at a cost of \$172,453. Engineering and design for maintenance dredging contract to be awarded next FY began at a cost of \$41,113. Surveys, real estate, and supervision and administration cost \$327,506. Real estate disposal activities for Wisconsin & Left Hand Points continued at a cost of \$14,862.

Work authorized prior to 1960 Act was completed in June 1956. Under the 1960 Act, work on the outer harbor, included in House Document 150, was completed in June 1965. Work in the inner harbor, included in House Document 196, started in May 1963, was completed in November 1968 except for 21st Avenue West channel portion which was deauthorized December 31, 1989. Of the work authorized in WRDA 1986, only the Cross Channel dredging has been completed (September 1994). All other authorized improvements are unscheduled.

The United States owns 34.90 acres of land in fee in Minnesota and Wisconsin of which 2.15 acres are used

for a vessel yard. Navigation structures are in poor to excellent condition; repairs are scheduled in the near future. Total cost of the existing project to end of FY was \$116,269,117, of which \$17,226,343 was for new work (includes \$331,685 contributed funds), \$85,931,115 for maintenance, \$1,556,249 for diked disposal and \$11,555,410 for rehabilitation.

13. FOX RIVER, WI

Location. Rises in Columbia County, WI, and flows about 176 miles northerly into Green Bay. Wolf River, physically a main river but by designation a tributary of Fox River, rises in central part of Port County, WI and flows southerly. (See NOAA Nautical Chart 14916 for Lake Winnebago and lower Fox River.)

Previous Projects. See page 1368 of Annual Report for 1962.

Existing Project. Deepening and widening channel of Fox River from DePere 7 miles above mouth to confluence of Wolf River, a total length of 59 miles, to 6 feet, with 9.6 feet in rock cut below DePere lock and 7 feet in other rock cuts on lower river below Menasha lock; construction and reconstruction of 19 locks and 9 dams; a concrete retaining wall at Kaukauna; construction and maintenance of harbors having depths of 6 feet on Lake Winnebago; widening Neenah Channel to 100 feet, with a 6-foot depth for about 1 mile; and dredging, snagging, and otherwise improving Wolf River 47 miles from its mouth to New London, depth to be 4 feet.

Cost of completed portion of project is \$513,424 for the lower river exclusive of previous projects. The uncompleted portion of the project authorized by the River and Harbor Act of 1925, was deauthorized Dec. 31, 1989, in accordance with Section 1001 of the WRDA of 1986 (PL 99-662). Section 332 of the WRDA of 1992 authorized the transfer of the navigation system to the State of WI subject to agreement; however, water regulation and dam operation will be continued by the Federal government. (See Table 21-B for authorizing legislation.)

Local Cooperation. None required.

Terminal Facilities. Wharf and landing facilities are, in general, adequate for existing needs. (See Table 21-I on locks and dams, Fox River, WI.)

Operations During Fiscal Year. Maintenance: Condition surveys, environmental activities, safety training, miscellaneous inspections and reports, and

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plans for flood emergencies were performed at a cost of \$434,869. Water control studies, monitoring and regulation of water levels were performed at a cost of \$327,693. Real Estate activities cost \$42,002. The operation and maintenance of nine (9) dams and ten (10) overflow weirs and caretaker status maintenance of seventeen (17) locks and two (2) guard locks totaled \$482,996. Federal canal banks at various locations were repaired at a cost of \$379,490. Supervision and administration costs were \$93,363. Work for Phase II site assessment to support the transfer of the locks to the state of Wisconsin continued at a cost of \$182,709. (CORRECTION to Gate Hoist contract costs: The FY00 basic contract (erroneously cited as FY99 basic contract in the FY 2001 annual report) was completed in FY02 in the amount of \$92,879. Option one was 93% complete at the end of FY01 at a cost of \$1,645,121.) Option one of the FY00 contract to renovate the gate hoist and electrical mechanism at the remaining seven (7) dams was completed this FY at a cost of \$219,704. Work began on option two of this contract to renovate machinery at the Little Kaukauna and Rapid Croche Dams in the amount of \$1,797,232. Engineering and design during construction for this work cost \$17,650. Supervision and administration of the contract cost \$169,162. Option three of this contract to renovate machinery at the De Pere Dam was awarded in the amount of \$1,857,156. Renovation will begin next FY. An adjustment of -\$209 was made in supervision and administration costs to closeout the FY01 repair of the Little Kaukauna Dam retaining wall. Engineering and design for repair of the right abutment at Upper Appleton Dam continued at a cost of \$26,696. Engineering and design continued for concrete (crack) repairs at dams in the amount of \$19,186.

Existing project is complete except for the inactive portion. Nineteen original locks and nine original dams were rebuilt. (See Table 21-I for year of completion of each). Structures and dredging in pools have increased original depths generally about 2 feet. Work remaining to complete project consists of dredging in upper portion of Wolf River, and rock removal and deepening of Neenah Channel on lower Fox River, which are no longer considered necessary. The dams tainter gates are receiving new hoist mechanisms. Existing dams repairs are underway or programmed in the near future; but many of the locks are in extremely poor condition. Only the most critical lock repairs are being made to maintain the pool for industry and hydropower users. Total cost of the existing project to end of FY was \$80,687,787, of which \$3,753,334 was for new work and \$76,934,453 for operation and maintenance. Between July 5, 1884 and June 30, 1935, funds in the amount of \$3,706,187 were expended on operation and

care of works of improvement under provisions of permanent indefinite appropriation for such purposes.

14. FRANKFORT HARBOR, MI

Location. On east shore of Lake Michigan, 204 miles northeasterly from Chicago, IL, and 28 miles northerly from Manistee, MI. (See NOAA Nautical Chart 14907.)

Existing Project. Provides for constructing an exterior basin in Lake Michigan formed by two breakwaters, 450 feet apart at the outer ends, diverging at an angle of about 90 degrees, the main arm and shore connection on north breakwater are 972 and 1,000 feet long, respectively, and the main arm and shore connection of south breakwater 1,188 and 1,400 feet long, respectively; for removing 801 feet of north pier and 1,172 feet of south pier; dredging basin 20 feet deep and 800 feet wide at entrance, decreasing toward new pier heads to 600 feet wide, dredging approach and entrance channel through outer basin to a depth of 24 feet from deep water in Lake Michigan to a point 500 feet landward of opening between breakwaters, over the entire width outside the breakwaters; thence to maximum width of 500 feet inside the breakwaters and to 23 feet deep through inner portion of outer basin to outer end of north pier, over widths decreasing from 500 to 160 feet; and thence to 22 feet deep between the piers to the inner basin in Lake Betsie; dredging an 18-foot deep interior basin in Lake Betsie from within 50 feet of existing structures on the west and extending eastward about 1,550 feet to easterly boundary and from within 50 feet of existing structures on the north and extending southward 800 feet to the southerly boundary; dredging a recreational craft anchorage area 10 feet deep and 300 feet wide, extending 600 feet eastward of the east limit of the interior basin, with its north side in line with the north limit of the basin. Breakwaters and shore connections are built of concrete caissons and piling capped with concrete. Inner piers and revetments are built of stonefilled timber cribs and piling, all capped with concrete, except for 476 feet of south revetment which consists of steel sheet piling. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Two car ferry slips on south shore and several docks along north shore of Lake Betsie. The City and State provide a recreational docking facility on north side of Lake Betsie which is open to all on equal terms. There is also a marine

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railway capable of handling small craft. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys and miscellaneous inspections and reports performed by Government forces cost \$100,338. Minor structure repairs and safety maintenance performed by hired labor cost \$13,567. Real estate activities cost \$4,911. Engineering and design for repairs to the North Breakwater, Sections C and D, continued at a cost of \$49,641. Engineering and design for future maintenance dredging cost \$16,842.

Existing project was completed in 1939, with exception of the latest modification that was completed in 1969. For additional details on completion of existing project see page 1474 of Annual Report for 1962. Navigation structures are in fair to good condition. Total cost of the existing project to end of FY was \$14,264,973, of which \$1,955,159 (includes \$31,709 contributed funds) was for new work, \$10,830,538 for maintenance, \$1,204,500 for diked disposal and \$274,776 for rehabilitation.

15. GRAND HAVEN HARBOR AND GRAND RIVER, MI

Location. Harbor is on east shore of Lake Michigan, 108 miles northeasterly from Chicago, IL, and 23 miles northerly from Holland, MI. River rises in Jackson County, MI, and flows 260 miles westerly into Lake Michigan. (See NOAA Nautical Chart 14933, and Geological Survey Grand Rapids quadrangle.)

Previous Project. For details see page 1949 of Annual Report for 1915, and page 1481 of Annual Report for 1938.

Existing Project. An entrance channel protected by parallel piers and revetments at mouth of Grand River, a deep draft channel in river extending to Spring Lake, a turning basin, and a shallow draft channel in river extending 14.5 miles upstream to Bass River. Project depths are 23 feet in entrance channel, 21 feet in river to turning basin, 18 feet in turning basin and channel to Spring Lake, and 8 feet in upper Grand River channel. For additional details see page 1461 of Annual Report for 1962. Dredging on northerly side of inner channel is considered inactive. Estimated cost of this portion (1954) is \$38,600. The WRDA of 1986 authorized modifications to deepen the harbor entrance and river channels to 29 and 27 feet, respectively; and provides for a new and larger turning basin. Estimated cost (Oct 90) is \$20,400,000, which includes \$11,754,000

Federal and \$8,646,000 non-Federal. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with for completed portions of project. Local cooperation items for the newly authorized project in the WRDA of 1986 (PL 99-662), are as described in House Document 661, 76th Congress, 3d Session, and also includes, as a result of PL 99-662, construction cost sharing requirements as follows:

a. Contribute in cash 25 percent of the total cost of construction of general navigation facilities, exclusive of aids to navigation, a contribution presently estimated at \$4,246,000. The estimated cash contribution of \$4,246,000 to be paid in lump sum, prior to initiation of construction, or in annual installments during the construction period at a rate proportionate to the proposed or scheduled expenditure of Federal funds as required by the Chief of Engineers, or under another arrangement satisfactory to the Secretary of the Army, the final apportionment of cost to be made after actual costs have been determined; and

b. Repay, with interest, over a period of up to 30 years following project completion, 10 percent of the total cost of construction of general navigation facilities, an amount presently estimated at \$2,040,000. The Secretary of the Army may count against all or part of the 10 percent repayment, the amount of the local contribution of lands, easements, rights-of-ways, dredged/demolition material disposal sites and relocations. In no case are these costs to count against the cash payment during construction, and in no case would the amount waived exceed 10 percent of project cost.

Terminal Facilities. Several wharves exist for handling coal, limestone, sand and gravel, petroleum products, fish, and miscellaneous commodities. There is also a car-ferry slip, which is inactive. The State and local agencies provide recreational boating facilities, which are open to all on equal terms. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, confined disposal facility monitoring, environmental studies, and miscellaneous inspections and reports performed by Government forces cost \$294,882. Development of dredged material management plans continued at a cost of \$74,741. Safety maintenance performed by hired labor cost \$10,676. Engineering and design for repair of the North Pier, Section B, continued at a cost of \$50,885. An adjustment of \$27,618 was made in contract costs for the basic requirement of the multi-year contract completed last FY for maintenance

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dredging the outer harbor. Option year one of this contract began this FY, removing approximately 11,943 cubic yards of shoal material at a cost of \$54,227. This contract was also for Section 111 beach nourishment. Engineering, design, surveys, real estate, and supervision and administration cost \$64,458. Monitoring in connection with Section 111 of P.L. 90-483 was performed at a cost of \$52,547. Beach nourishment in conjunction with above maintenance dredging outer harbor contract cost \$21,756. Supervision and administration under Section 111 cost \$6,917.

Existing project was substantially completed in 1949. For additional details on completion of existing project see page 1463 of Annual Report for 1982. Condition of navigation structures range from good to poor with portions in a general state of deterioration and are scheduled for repairs. Total cost of the existing project to end of FY was \$40,975,749; of which \$1,458,469 was for new work, \$37,923,267 for maintenance (includes \$15,585 contributed funds), \$780,400 diked disposal and \$813,613 for rehabilitation.

16. GRAND MARAIS HARBOR, MI

Location. On south shore of Lake Superior, 93 miles west of Sault Ste. Marie, MI (See NOAA Nautical Chart 14962.)

Existing Project. Provides for a channel protected by parallel piers and for closing natural entrance channel with a pile dike. Project depths are 18 feet between piers and 20 feet in lake approach. For additional details see page 1449 of Annual Report for 1962. (See Table 21-B for authorizing legislation.)

Local Cooperation. None required.

Terminal Facilities. Several small piers, a Coast Guard Station, and a small boat pier and launching ramp built by the State of Michigan provide facilities adequate for present traffic.

Operations During Fiscal Year. Maintenance: Condition surveys performed by Government forces and contract cost \$2,544. A major rehabilitation evaluation report was continued at a cost of \$159,502. The report will update previous cost estimates and determine if reconstruction of the pile breakwater is warranted.

Existing project is complete except for widening a portion of channel from 250 to 300 feet. Project now being maintained to 19 and 15 feet below I.G.L.D., in

lieu of 20 and 18 feet, which is adequate for current usage. The Pile Dike Breakwater is severely deteriorated and no longer maintained, major repair is required to make the Breakwater functional. Total cost of the existing project to end of FY was \$3,987,313, of which \$1,055,871 was for new work and \$2,931,442 for maintenance.

17. GRAND TRAVERSE BAY HARBOR, MI

Location. At mouth of Traverse River on eastern shore of Keweenaw Peninsula about 20 miles northeasterly from Portage entry to Keweenaw Waterway. (See NOAA Nautical Chart 14964.)

Existing Project. Provides two parallel piers, an entrance channel between piers and a harbor basin. Project depths are 12 feet between piers and 10 feet in basin. Project area extended 200 feet upstream in 1966. For additional details see page 1015 of Annual Report for 1965. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with. Local interests furnished easements on 5.1 acres of land.

Terminal Facilities. Several privately owned fishing wharves. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces and contract cost \$53,559. A contract for maintenance dredging was awarded and completed this FY, removing 15,298 cubic yards of shoal material at a cost of \$122,991. Engineering, design, surveys and supervision and administration cost \$39,292.

Existing project was completed in 1950 except for extension of north pier completed in 1964. Steel cells and piers are in good condition. Total cost of existing project to end of FY was \$3,011,677, of which \$329,565 was for new work and \$2,682,112 for maintenance.

18. GREEN BAY HARBOR, WI

Location. At mouth of Fox River, at head of Green Bay, about 180 miles from Milwaukee, WI, via Sturgeon Bay Canal, and about 49 miles southwest of

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Menominee Harbor, MI and WI. (See NOAA Nautical Chart 14918.)

Previous Projects. See page 1366 of Annual Report for 1962.

Existing Project. See Chicago District 1979 Annual Report, Table 30-C, page 30-30.

For more detailed description of project see page 1216 of Annual Report for 1963.

Cost of completed portion of project is \$9,335,000 Federal, and non-Federal cost is \$490,000 including \$100,000 contributed funds. Local interests requested that the inactive portion of the 1962 River and Harbor Act, consisting of dredging the reach from 150 feet downstream of the Chicago & Northwestern Railway Bridge to 1,700 feet upstream of this bridge, be reactivated and the authorization modified to include deepening the adjacent turning basin and modifying the Chicago & Northwestern Railway Bridge to provide increased horizontal clearance. Estimated cost of this portion (1990) is \$6,130,000; \$4,030,000 Federal and \$2,100,000 non-Federal which includes \$1,970,000 local contribution. Section 601c of the WRDA of 1986 authorized deepening the Fox River Channel, Green Bay, WI, to 27 feet. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with for existing project.

Terminal Facilities. There are 16 wharves for handling coal, petroleum products, cement, limestone, general overseas cargo and miscellaneous commodities. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, environmental studies, confined disposal facility monitoring, and miscellaneous inspections and reports performed by Government forces cost \$413,711. FY02 contract for maintenance dredging the outer harbor was completed this FY, removing 104,431 cubic yards of shoal material at a cost of \$1,590,514. A contract was awarded this FY for maintenance dredging in the amount of \$1,769,300. The contract was 30% complete at the end of the FY, removing approximately 35,500 cubic yards of shoal material at a cost of \$524,000. Engineering, design, surveys, real estate, and supervision and administration cost \$174,148.

Existing project is complete. The 1962 modification was started in November 1966 and completed in

September 1973, except for dredging the reach from 150 feet downstream of the Chicago & Northwestern Railway Bridge to 1,700 feet upstream of this bridge. Dredging of the turning basin above C & N.W. Railway Bridge was commenced in August 1938. The turning basin was enlarged under authority of Section 5 of the Rivers and Harbors Act of March 4, 1915, in order to provide sufficient area for the large ships that use it. The work was performed as part of a maintenance dredging contract in September and October 1973. East revetment at Grassy Island was entirely removed in July 1935. Dredging Fox River and entrance channel to Tail Point Light was completed in September 1967. Total cost of the existing project to end of FY was \$68,979,956 (\$68,039,156 regular funds and \$940,800 Public Works Funds), \$9,946,395 for new work, \$51,129,250 for maintenance and \$7,904,311 for diked disposal. The new work cost does not include \$100,000 contributed funds.

19. HOLLAND HARBOR, MI

Location. On east shore of Lake Michigan 95 miles northeasterly from Chicago, IL, and 23 miles southerly from Grand Haven, MI. (See NOAA Nautical Chart 14932.)

Previous Project. For details see page 1948 of Annual Report for 1915, and page 1478 of Annual Report for 1938.

Existing Project. An outer breakwater protected approach channel in Lake Michigan, an entrance channel to Lake Macatawa protected by piers and revetments, a channel through Lake Macatawa into Black River, and a turning basin. Project depths are 23 feet in outer portion of approach channel decreasing to 21 feet at outer end of inner piers, 21 feet to upper end of project, and 18 feet in turning basin. For additional details see page 1458 of Annual Report for 1962.

The uncompleted portion of the project, widening bend of entrance channel into Lake Macatawa, was deauthorized Dec, 31, 1989, in accordance with Section 1001 of the WRDA of 1986 (PL 99-662). (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with for completed portions of project.

Terminal Facilities. Wharves are at inner end of Lake Macatawa and used for handling coal, building materials, petroleum products, and miscellaneous commodities. Two shipbuilding yards are on south

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shore of the lake. Holland provides a public wharf for small craft. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, environmental studies, confined disposal facility monitoring, and miscellaneous inspections and reports performed by Government forces and contract cost \$186,627. Safety and confined disposal facility maintenance performed by hired labor cost \$8,423. An adjustment of \$25,470 was made in contract costs for the basic requirement of the multi-year contract completed last FY for maintenance dredging the outer harbor. Option year one of this contract began this FY, removing approximately 21,500 cubic yards of shoal material at a cost of \$75,470. This contract was also for beach nourishment. Placement area discharge cost \$22,378. Engineering, design, real estate, surveys, and supervision and administration cost \$54,318. Monitoring in connection with Section 111 of P.L. 90-483 was performed at a cost of \$51,650. Beach nourishment in conjunction with above maintenance dredging outer harbor contract cost \$25,560. Supervision and administration under Section 111 cost \$5,179.

Existing project, with exception of widening bend in revetted entrance channel authorized by Act of September 3, 1954, was completed in 1957. For additional details on completion of existing project, see page 1460 of Annual Report for 1962. Navigation structures are in good to fair condition with repairs anticipated within the next 5 years. Total cost of the existing project to end of FY was \$33,971,194, of which \$1,392,827 was for new work (\$1,180,502 regular funds, \$176,620 for previous project and \$35,705 contributed funds), \$30,412,615 for maintenance, \$1,663,300 for diked disposal and \$502,452 for rehabilitation.

20. THE INLAND ROUTE, MI

Location. A series of interconnected lakes and streams stretching across northern tip of Lower Peninsula of Michigan, and extends from Conway near Lake Michigan to Cheboygan on Lake Huron; a distance of 35 miles. Crooked and Indian Rivers are connecting channels in the waterway. (See NOAA Nautical Chart 14886.)

Existing Project. Provides for a channel 30 feet wide and 5 feet deep, with necessary widening at bends, through Crooked and Indian Rivers, and Crooked, Burt, and Mullett Lakes, and from Conway (west end

of Crooked Lake) to navigation lock at Cheboygan; in Pickerel Channel from Pickerel Lake to Crooked Lake. It also provides for suitable jetties at head of Indian River. The addition of a lock and dam was approved by the Chief of Engineers on Sep. 2, 1964, to correct a design deficiency. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. None exist for commercial cargo-handling along the Crooked and Indian Rivers. Numerous small privately owned timber piers and wharves, some equipped with covered boat wells for serving and storing recreational craft, have been constructed. Landings maintained by hotel and resort operators are open to the public for transfer of passengers. Public docks are at Conway and Oden on Crooked Lake; the village of Indian River, Topinabee, and Mullett Lake Village on Mullett Lake; and at Cheboygan. About 30 highways dead end at water's edge, permitting public access for various marine activities. Dock facilities are considered adequate for existing traffic.

Operations During Fiscal Year. Maintenance: The navigation lock was operated and maintained by the State of Michigan at no cost to the Government. In FY 03, the lock was operated from 9:00 a.m. to 5:00 p.m. April 26-27, May 3, 4, 10, 11, 17, 18, September 15-30. The lock was operated 8:00 a.m. to 9:00 p.m. May 24-June 30, and 8:00 a.m. to 8:00 p.m. September 2-14. The lock was operated from 8:00 a.m. to 10:00 p.m. July 1-September 1. The lock was operated from 9:00 a.m. to 11:00 a.m. and 3:00 p.m. to 5:00 p.m. October 4, 5, 11, 12. The lock closed for the season on October 12 at 5:00 p.m. Condition surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces cost \$27,606.

The existing project was completed in 1958. The lock and dam was completed in FY 1968. For additional details see page 1382 of Annual Report for 1960. Total cost of the existing project to end of FY was \$4,971,192, of which \$918,222 was for new work (includes \$148,000 contributed funds), \$3,648,670 for maintenance, and \$404,300 for diked disposal.

21. KENOSHA HARBOR, WI

Location. On west shore of Lake Michigan about 35 miles south of Milwaukee and about 54 miles north of Chicago. (See NOAA Nautical Chart 14904.)

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Previous Project. See page 1390 of Annual Report for 1962.

Existing Project. For detailed description see page 1237, Annual Report for 1963. Estimated (1986) Federal cost is \$455,000 exclusive of amounts expended on previous projects, and \$195,000 non-Federal which includes \$155,000 local contribution. (See Table 21-B for authorization legislation.)

The uncompleted portion of the project authorized by the 1962 River and Harbor Act, dredging of 25-foot wide strips adjacent to the north and south piers, was deauthorized Dec. 31, 1989, in accordance with Section 1001 of the WRDA of 1986 (PL 99-662).

Local Cooperation. Fully complied with.

Terminal Facilities. Three wharves used for miscellaneous foreign overseas commodities and autos, and also several fish wharves. While these facilities are considered generally adequate for existing commerce, more efficient use of existing terminals and utilization of available frontage for development of additional terminals should be made.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost \$3,366.

Existing project is complete except for dredging 25-foot strips adjacent to the north and south piers which was deauthorized December 31, 1989. The north and south piers were completed in 1900 and the breakwater in 1909. Navigation structures range from fair to good condition; Detached North Breakwater needs repair. Total cost of the existing project to end of FY was \$14,527,419 (\$14,499,761 were regular funds and \$27,658 Emergency Relief Funds), of which \$988,969 was for new work, \$7,889,575 for maintenance, \$4,378,600 for diked disposal and \$1,270,275 for rehabilitation. The new work cost does not include \$3,000 contributed funds.

22. KEWAUNEE HARBOR, WI

Location. On west shore of Lake Michigan, about 105 miles north of Milwaukee, WI, and about 78 miles from Green Bay, via Sturgeon Bay Canal. Harbor is at mouth of Kewaunee River. (See NOAA Nautical Chart 14908.)

Previous Projects. See page 1375 of Annual Report for 1962.

Existing Project. See Chicago District 1979 Annual Report, Table 30-C, page 30-31.

Costs of completed project are \$603,021 Federal, and \$9,000 non-Federal, exclusive of amount expended on previous projects. Uncompleted portion (estimated \$200,000, July 1965) of 1935 River and Harbor Act is considered inactive, and excluded from present cost estimate. The portion authorized by the 1960 River and Harbor Act was deauthorized in 1977. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Two car-ferry slips, a petroleum tank farm, a Corps of Engineers project office, and several fish wharves. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, and miscellaneous inspections and reports performed by Government forces cost \$70,291. Safety repairs, and supervision and administration cost \$8,737.

Active portion of existing project is complete. The north pier was completed in 1897 and the remaining portion is in generally good condition. Rehabilitation of the south pier was completed in June 1967. Construction of north breakwater and shore connection, except for a gap of 150 feet about 830 feet from shoreward end, and removal of outer 706.5 linear feet of north pier was commenced in September 1935 and completed in June 1937. Removed 500 linear feet of north pier in April/May 1963 and widened and deepened the adjacent channel in 1965. Outer end of the north pier was struck and severely damaged by car ferry vessel in October 1973 and a 24-foot section at outlet end was subsequently removed, thus reducing the structure to a length of 626 feet. Dredging entrance channel in interior basin to the existing project depth was commenced in April and completed in October 1938. Kewaunee River is navigable to about 6.5 miles above mouth for craft drawing not more than 4 feet. Navigation structures range from fair to good condition. Total cost of the existing project to end of FY was \$13,086,829, of which \$758,333 was for new work (\$338,333 regular and \$420,000 Emergency Relief Funds) \$8,749,735 for maintenance, \$2,961,461 for diked disposal and \$617,300 for rehabilitation.

23. KEWEENAW WATERWAY, MI

Location. In Lake Superior across Keweenaw Peninsula in upper peninsula of Michigan. The west

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entrance is 169 miles east of Duluth, MN. (See NOAA Nautical Chart 14972.)

Existing Project. A navigable channel, minimum width 300 feet, 25 miles long, partially natural and partially artificial, across Keweenaw Peninsula via Portage Lake. For details see page 1121 of Annual Report for 1963. (See Table 21-B for authorizing legislation.)

The uncompleted portion of the project for navigation at Keweenaw Waterway, Houghton County, MI, authorized by the River and Harbor Act of Aug. 30, 1935, PL 409, 73rd Congress, which consists of extending the lower entrance breakwater by 2,000 feet, including the necessary alteration or replacement of structures due to channel deepening, was deauthorized by the WRDA of 1986; PL 99-662, Nov. 17, 1986, 99th Congress, Title X.

Local Cooperation. None required.

Terminal Facilities. Six coal docks, a petroleum dock, and several general merchandise and miscellaneous wharves, all privately owned. Facilities are considered adequate for existing commerce. Also present is a government constructed recreational area with facilities to include a picnic area and small boat landing range.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, and miscellaneous inspections and reports performed by Government forces cost \$71,924. Safety repairs performed by hired labor cost \$1,759.

Active portion of the project is complete. Lower entry piers are in fair condition. It is anticipated repairs will be required within the next ten years. Upper entry breakwaters are in good condition, but require annual stone maintenance due to severity of the wave climate. Total cost of the existing project to end of FY was \$36,217,276, of which \$5,974,141 was for new work, \$28,719,635 for maintenance and \$1,523,500 for diked disposal.

24. KNIFE RIVER HARBOR, MN

Location. Near mouth of Knife River on north shore of Lake Superior, 19 miles northeasterly from Duluth, MN, and 7 miles southwest of Two Harbors, MN. (See NOAA Nautical Chart 14966.)

Existing Project. Provides for an entrance channel with a system of overlapping breakwaters, using the existing breakwater and a new breakwater constructed of 731 feet of rock rubblemound. The entrance channel is 9 feet deep and an inner straight channel is 8 feet deep, 50 feet wide, and 600 feet long with a public marina and side channel at its inner end. For additional details see page 1110 of Annual Report for 1963. A modification to correct a design deficiency was authorized in 1974. (See Table 21-B for authorizing legislation.)

Local Cooperation. Local interests are to furnish easements on 15.08 acres of land.

Terminal Facilities. Local interests have installed pile-and-timber docks on both sides of straight channel. Lake County has completed construction by contract of a marina along the east wing of the inner harbor.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost \$26,002.

Project was completed in June 1958. Breakwater is in fair condition. The existing breakwater does not effectively prevent waves caused by northeasterly winds from entering the entrance channel. This results in unsatisfactory and unsafe harbor entrance conditions during storms. Mooring conditions in the main channel and Y-branches of the inner harbor are also adversely affected. Plans and specifications for the construction of a breakwater to correct a design deficiency to reduce wave damage and improve navigation conditions were completed and approved by NCD in 1982. Total project costs to end of FY were \$875,873, of which \$528,945 was for new work and \$346,928 for maintenance.

25. LAC LA BELLE HARBOR, MI

Location. On the south shore of Lake Superior on the eastern shore of Keweenaw Peninsula, 41 miles northeasterly from Portage entry to Keweenaw Waterway. Lack La Belle, Bete Grise Bay, and Mendota Ship Canal combine to form the harbor. (See NOAA Nautical Chart 14964.)

Existing Project. Provides for construction of two parallel piers at the entrance having lengths of 584 and 682 feet for north and south piers, respectively; for an entrance channel between the piers 50 feet wide and 12 feet deep, about 820 feet long with a flared approach; and for an inner canal 50 feet wide and 10 feet deep,

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about 730 feet long. For additional details see page 1039, Annual Report for 1964. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Several small, privately owned wharves are available in the harbor for use of small craft engaged in fishing and recreational activities. A State owned dock for small craft is located at the northwest corner of Lac La Belle Bay.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost \$2,621.

The existing project was completed in 1960. Controlling depths are about 11 feet in the approach channel and 10 feet in the inner channel. Navigation structures range from fair to good condition. Total cost of the existing project to end of FY was \$1,125,679, of which \$269,270 was for new work and \$856,409 for maintenance. The new work does not include \$38,190 contributed funds.

26. LAKE ST. CLAIR, MI, CHANNELS IN

Location. Lake St. Clair, a section of Great Lakes connecting channels, is an expansive shallow basin having a vessel track length of about 15 miles from mouth of St. Clair River to head of Detroit River. (See NOAA Nautical Chart 14850.)

Previous Project. For details see page 2882, Annual Report for 1896; pages 1957-58, Annual Report for 1915; and page 1539, Annual Report for 1938.

Existing Project. An improved channel through Lake St. Clair 800 feet wide, 27.5 feet deep, and about 14.5 miles long; extending from mouth of Southeast Bend cutoff channel at lower end of St. Clair River to head of Detroit River Channel. (See Table 21-B for authorizing legislation.)

Local Cooperation. None required.

Terminal Facilities. None.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, support of the water control center, and miscellaneous inspections and reports performed by Government forces cost \$67,551. Maintenance of the confined disposal facility

performed by contract at a cost of \$10,100. Startup of disposal actions for Gull Island, MI cost \$30,009.

Total cost of the existing project to end of FY was \$22,028,017, of which \$7,675,357 was for new work (\$6,666,762 regular funds and \$1,008,595 Public Works Funds), \$9,232,860 for maintenance, and \$5,119,800 for diked disposal.

27. LELAND HARBOR, MI

Location. A light-draft harbor on eastern shore of Lake Michigan at mouth of Carp River, about 40 miles north of Frankfort, MI, and 40 miles southwest of Charlevoix, MI. (See NOAA Nautical Chart 14912.)

Existing Project. Provides for a harbor of refuge consisting of a breakwater about 1,200 feet long, a protected anchorage and maneuver area about 3 acres in extent and 10 feet deep, a 12-foot deep flared approach channel decreasing in width to 90 feet, an existing south pier 440 feet long, a 35-foot long cellular extension to south pier, an entrance channel 6 feet deep and 40 feet wide extending to mouth of Carp River, and for elimination of existing north pier. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Privately owned wharves on each side of river below the dam which is 400 feet above the river mouth. These wharves serve the local fishing interests and recreational craft. Public facilities are operated by the State and local agencies. All available dockage space is utilized.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost \$29,224. Safety maintenance performed by hired labor cost \$4,125. A contract for maintenance dredging was awarded and completed this FY, removing 17,479 cubic yards of shoal material at a cost of \$80,546. Engineering, design, surveys, and supervision and administration cost \$70,948.

The existing project was completed in 1932 except for the 1962 authorization, which was completed in 1967. Navigation structures are in good condition. Total cost of the existing project to end of FY was \$5,335,001, of which \$1,027,089 was for new work (includes \$354,139 contributed funds), \$4,237,234 for maintenance and \$70,678 for rehabilitation.

28. LEXINGTON HARBOR, MI

Location. On southwest shore of Lake Huron, 20 miles north of Port Huron, MI. (See NOAA Nautical Chart 14862.)

Existing Project. Provides for two offshore breakwaters opening to the southeast and totaling about 2,400 feet long with provisions for recreational fishing on the main breakwater; an anchorage and maneuver area of about 5 acres, 8 feet deep; and a flared approach channel 10 feet deep, decreasing to 160 feet in width through the breakwaters. Project also provides for recreational fishing facilities. Estimated (1979) Federal cost of new work is \$1,647,306 excluding \$1,088,888 to be contributed by local interests. (See Table 21-B for authorizing legislation.)

Local Cooperation. Assurances of local cooperation were furnished by the Michigan Department of Natural Resources to the Secretary of the Army. The cash contribution was \$1,088,888.

Terminal Facilities. An existing public fishing pier of open pile construction is not adequate for existing and prospective commerce. Complete boating facilities are planned by State and local agencies in connection with the harbor construction.

Operations During Fiscal Year. Maintenance: Condition surveys and miscellaneous inspections and reports performed by Government forces cost \$40,810. A contract for maintenance dredging was awarded in the amount of \$69,925. The contract was 91% complete at the end of the FY, removing approximately 17,500 cubic yards of shoal materials at a cost of \$63,925. Engineering, design, real estate, and supervision and administration cost \$31,804. Monitoring in connection with Section 111 of P.L. 90-483 was performed at a cost of \$29,723. Engineering, design, and sediment sampling for beach nourishment (trucking) contract was completed at a cost of \$66,012.

The existing project was completed during FY 1977. Navigation structures are in fair condition. Total cost of the existing project to end of FY was \$6,513,032, of which \$3,107,192 (includes \$1,088,888 contributed funds) was for new work and \$3,405,840 for maintenance.

29. LITTLE LAKE HARBOR, MI

Location. On south shore of Lake Superior 21 miles west of Whitefish Point and 30 miles east of Grand

Marais, MI. (See NOAA Nautical Chart 14962.)

Existing Project. Provides for a small-craft harbor of refuge by dredging an entrance channel 12 feet deep from Lake Superior into Little Lake, suitably protected by breakwaters and revetments. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Only terminal facility at project consists of a public dock built by the State of Michigan for light-draft craft.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost \$20,701. A contract for maintenance dredging was awarded and completed this FY, removing 31,000 cubic yards of shoal material at a cost of \$238,573. Engineering, design, surveys, and supervision and administration cost \$58,451.

This project is considered complete; however, because of shifting sand, the harbor entrance shoals rapidly with the result that full project depth is not usually available. Navigation structures are in good condition. Total cost of the existing project to end of FY was \$6,060,593, of which \$600,478 was for new work (includes \$57,670 contributed funds) and \$5,460,115 for maintenance.

30. LUDINGTON HARBOR, MI

Location. On east shore of Lake Michigan, 156 miles northeasterly from Chicago, IL, and 67 miles northerly from Grand Haven, MI. (See NOAA Nautical Chart 14937.)

Previous Project. For details see page 1951 of Annual Report for 1915, page 1491 of Annual Report for 1938, and page 1307 of Annual Report for 1963.

Existing Project. Provides for an exterior basin in Lake Michigan protected by north and south breakwaters, north breakwater is 1,800 feet long and south breakwater 1,700 feet long, 550 feet apart at outer ends, diverging at an angle of 90 degrees, with shore connections, 1,103 and 2,004 feet long, respectively; for dredging exterior basin to 18 feet deep with a maximum width of 1,500 feet; for a channel with a depth of 29 feet from deep water in Lake Michigan decreasing to 27 feet at the west end of the north pier, over a maximum width of 600 feet; thence a channel with a depth of 27 feet, over a minimum width

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of 230 feet with necessary widening at Pere Marquette Lake; and for inner piers and revetments, 1,649 feet long on north and sufficiently long on the south for turn at Pere Marquette Lake. The estimated (1977) Federal cost for new work is \$8,250,000. Estimated total cost for local interests is \$147,000. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. In addition to main terminal of Chesapeake & Ohio Railway Company consisting of three car ferry slips, a wharf, and warehouses, there are several wharves which handle coal, limestone, and miscellaneous commodities. Facilities are adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost \$113,320. Safety maintenance performed by hired labor cost \$8,574. Engineering and design for future maintenance dredging was initiated at a cost of \$15,944. Supervision and administration to closeout option one of the FY01 maintenance dredging contract cost \$9,003.

Existing project was completed in 1918. For additional details on completion of existing project see page 1469 of Annual Report for 1962. Structures are in good condition except for the south breakwater head that needs repair. Total cost of the existing project to end of FY was \$31,478,050, of which \$8,532,202 was for new work, \$22,587,935 for maintenance, and \$357,913 for rehabilitation. The maintenance cost does not include \$136,286 contributed funds.

31. MANISTEE HARBOR, MI

Location. On east shore of Lake Michigan, 179 miles northeasterly from Chicago, IL, and 26 miles northerly from Ludington, MI. (See NOAA Nautical Chart 14938.)

Previous Project. For details see page 1952 of Annual Report for 1915, and page 1493 of Annual Report for 1938.

Existing Project. An entrance channel in Lake Michigan protected by a breakwater, piers, and revetment; a channel in Manistee River to Manistee Lake; and Federal participation in cost of replacing Maple Street Bridge. Project depths are 25 feet in entrance channel and 23 feet in river channel. For

additional details see page 1470 of Annual Report for 1962. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Installations are on both sides of river and on Manistee Lake. Commerce handled includes coal, sand, salt, and general cargo. In addition, there is a Government wharf and a State and City owned recreational craft pier which is open to the public. These facilities satisfy current commerce requirements.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost \$51,690. Safety repairs performed by hired labor cost \$17,587. Engineering and design for maintenance dredging contract to be awarded next FY cost \$12,725.

Existing project was completed in August 1967. For additional details on completion of existing project see page 1470 of Annual Report for 1962. Navigation structures range from generally fair to good condition. Total cost for existing project to end of FY was \$16,835,159, of which \$2,696,522 was for new work, \$12,764,473 for maintenance, and \$1,374,164 for rehabilitation.

32. MANISTIQUE HARBOR, MI

Location. On the north shore of Lake Michigan, 135 miles northeasterly from Green Bay Harbor, WI, and 220 miles northerly from Milwaukee, WI. (See NOAA Nautical Chart 14908.)

Previous Projects. For details see page 1933 of Annual Report for 1915, and page 1422 of Annual Report for 1938.

Existing Project. A breakwater protected entrance channel in Lake Michigan, a channel in Manistique River, and a pier at river mouth. Project depths are 19 feet in outer portion of entrance channel, 18 feet in inner portion of entrance channel, and 18 feet in river channel. For additional details see page 1452 of Annual Report for 1962. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. A car ferry slip, two coal and building material wharves, two fishing wharves, and numerous lumberyard slips. Facilities are considered adequate for existing commerce.

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Operations During Fiscal Year. Maintenance: Miscellaneous inspections and reports performed by Government forces cost \$3,189.

Navigation structures are in generally excellent condition. Total cost of the existing project to end of FY was \$8,608,935, of which \$1,299,355 was for new work, \$6,993,247 for maintenance and \$316,333 for rehabilitation.

33. MANITOWOC HARBOR, WI

Location. On west shore of Lake Michigan about 79 miles north of Milwaukee, WI, and about 106 miles from Green Bay Canal. (See NOAA Nautical Chart 14922.)

Previous Projects. See page 1379 of Annual Report for 1962.

Existing Project. The total estimated (Oct. 1981) project cost is \$3,080,000; the Federal cost is \$1,085,000 and non-Federal cost is \$1,995,000, which is a cash contribution. See Chicago District Annual Report for 1979, Table 30-C.

For detailed description see page 1228 of Annual Report for 1963. Estimated costs (1970) of new work for 1968 modification are \$81,000 Federal and \$30,000 non-Federal which includes a cash contribution of \$18,000. Work on the 1968 modification was postponed until 1982. The portion authorized by the 1962 River and Harbor Act was deauthorized Dec. 31, 1989, in accordance with Section 1001 of the WRDA of 1986 (PL 99-662). (See Table 21-B for authorizing legislation.)

Construction of a small boat harbor within the existing harbor was authorized by the Chief of Engineers, June 26, 1979, and 720-foot channel extension affirmed in July 1982, under authority of Section 107, 1960 River and Harbor Act, as amended.

Local Cooperation. Fully complied with for completed modifications. For 1968 modification local interests must make an annual cash contribution equivalent to 50% of the annual costs associated with construction and maintenance of the channel extension until such time that a second user utilizes the channel extension. Such a contribution is presently estimated at \$9,206; additional assurances require that the sponsor provide without cost to the United States all lands, easements, and rights-of-way required for construction and subsequent maintenance, including suitable areas determined by the Chief of Engineers to be required in

the general public interest for initial and subsequent disposal of dredged materials, and the necessary retaining dikes, bulkheads and embankments therefor or the costs of such retaining works; hold and save the United States free from damages due to the construction works and subsequent use, operation, and maintenance of the project, not including damages due to the fault or negligence of the United States or its contractors; provide and maintain without cost to the United States adequate berthing areas at the docks adjacent to the improvement; accomplish at no cost to the United States all relocations and alterations of utilities necessary for the project; assume full responsibility for all project first costs in excess of the Federal cost limitation of \$2,000,000; and comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970.

Terminal Facilities. Three car-ferry slips, a grain elevator, one shipbuilding yard, and three other wharves used for handling coal, building materials, cement, and miscellaneous commodities. While these facilities are considered adequate for existing commerce, it is believed the city should provide a suitable wharf with warehouse and railway connection open to the general public.

Operations During fiscal year. Maintenance: Condition and structure surveys, and miscellaneous inspections and reports performed by Government forces cost \$78,436. Safety repairs performed by hired labor cost \$26,995.

Existing project is complete except for the 1962 and 1968 modifications. The 1962 modification was deauthorized December 31, 1990. Work on the 1968 modification was essentially completed in FY 83. The Federal modification, adopted July 15, 1985, included the expansion of the new entrance channel to the Section 107 project and extension of the rubblemound breakwater. Dredging a channel through the outer basin to existing project depth and removal of a portion of old north stub pier at the river entrance were completed in December 1937. Dredging river channel was completed in July 1942. South Breakwater, Section E, is in fair condition and is programmed for repair. Total cost of the existing project to end of FY was \$17,161,737, of which \$3,960,044 was for new work (includes \$1,911,130 contributed funds), \$10,119,937 for maintenance (includes \$66,735 contributed funds), and \$3,081,756 for diked disposal.

34. MARQUETTE HARBOR, MI

Location. In Marquette Bay on south shore of Lake

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Superior, 160 miles west of Sault Ste. Marie, MI, and 265 miles east from Duluth, MN. (See NOAA Nautical Chart 14970.)

Existing Project. Provides for a breakwater, and a harbor basin 26.5 feet deep, giving a protected area of 350 acres. Project was modified in 1960 to provide a 27-foot depth in harbor area. (See Table 21-B for authorizing legislation.)

Local Cooperation. None required for earlier authorizations. Fully complied with for the 1960 Act.

Terminal Facilities. One ore dock, unused at present; two coal docks; one petroleum dock; and three other unused docks. There are also several small fish wharves without railroad connections. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost \$8,995. Breakwater, Sections E & F, repairs were performed using the U.S. Derrickbarge SCHWARTZ at a cost of \$294,798. Real estate, and supervision and administration cost \$29,373.

Navigation structures are in fair to good condition. Total cost of the existing project to end of FY was \$5,651,771, of which \$1,282,893 was for new work, \$3,903,121 for maintenance and \$465,757 for rehabilitation.

35. MENOMINEE HARBOR AND RIVER, MI AND WI

Location. On Lake Michigan at the mouth of Menominee River on the western shore of Green Bay, 16 miles northwest of the mouth of Sturgeon Bay, and 49 miles northeast of Green Bay Harbor, about 155 miles from Milwaukee via Sturgeon Bay Canal. The river forms the boundary between the commercial harbors at Marinette, WI, and Menominee, MI. (See NOAA Nautical Chart 14917.)

Previous Projects. See page 1361 of Annual Report for 1962.

Existing Project. See Chicago District Annual Report for 1979, Table 30-C, page 30-26.

For detailed description see page 1214, Annual Report for 1963. The portion authorized by 1960 River and Harbor Act is inactive and estimated (1964) at

\$442,000 Federal, and \$105,000 non-Federal. Costs of completed new work, exclusive of inactive work and amount expended on previous projects, are \$221,053 Federal and \$40,762 non-Federal, which includes a cash contribution of \$36,762. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with for completed work.

Terminal Facilities. There are 9 wharves for handling coal, limestone, pulp and miscellaneous commodities. City of Marinette, WI, provided a public wharf. Facilities are considered fairly adequate for existing commerce, except that there is need for a public wharf owned by city of Menominee, with warehouse and railway connection.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces cost \$44,758. Obstruction removal using the U.S. Cranebarge MANITOWOC cost \$109,407. Real estate and supervision and administration cost \$25,570.

The project in effect prior to the modification of March 2, 1945, was completed in 1938. No additional work was necessary under the modification of March 2, 1945, to provide a depth of 12 feet in the extension of the channel to the vicinity of the Marinette Yacht Club, as project depth or more was available. The entrance piers were completed in 1884, were rehabilitated (1954-1964) and are in excellent condition. Dredging of the channel below the Marinette municipal wharf, together with enlarging the turning basin to existing project depth, was commenced in May 1938. Modification of the project authorized by the 1960 River and Harbor Act is inactive. Construction for the 1967 modifications was started August 17, 1968, and completed in October 1968. Navigation structures are in good condition. Total cost of the existing project to end of FY was \$6,159,043, of which \$570,238 was for new work (includes \$36,762 contributed funds), \$3,643,293 for maintenance, \$593,660 for diked disposal and \$1,351,852 for rehabilitation.

36. MILWAUKEE HARBOR, WI

Location. On west shore of Lake Michigan about 85 miles north of Chicago, IL, and about 83 miles west of Grand Haven, MI. (See NOAA Nautical Chart 14924.)

Previous Projects. See page 1385 of Annual Report for 1962.

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Existing Project. See Chicago District Annual Report for 1979, Table 30-C, page 30-26. For detailed description see page 1232 of Annual Report for 1963.

Completed new work costs are \$6,934,804 Federal and \$478,000 non-Federal, exclusive of amount expended on previous projects. The uncompleted portion authorized by the 1935 River and Harbor Act was deauthorized Dec. 31, 1989, in accordance with Section 1001 of the WRDA of 1986 (PL 99-662). Uncompleted portion of 1945 River and Harbor Act was deauthorized in 1977. (See Table 21-B for authorizing legislation.)

Local Cooperation. Complied with for Acts of March 2, 1945, October 23, 1962, and July 14, 1960, except deauthorized portion of 1945 Act. Act of Aug. 30, 1935, provided that original dredging of outer harbor area be done by city of Milwaukee and city of Milwaukee be reimbursed at actual cost but not to exceed 10 cents per cubic yard, place measurement, for original dredging done subsequent to authorization of work by Congress. Agreement covering dredging was executed by Secretary of War, Feb. 23, 1934, after this work was originally authorized as part of public works program. City was reimbursed for 10 percent of dredging.

Terminal Facilities. There are 4 car-ferry slips, and 57 other wharves, private and municipal, used for handling coal, grain, building materials, cement, petroleum products, and miscellaneous commodities. As facilities in inner harbor were inadequate for existing commerce, Milwaukee Harbor Commission has constructed nine docks in the outer harbor for handling general cargo.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, environmental studies, confined disposal facility monitoring, and miscellaneous inspections and reports performed by Government forces and contract cost \$351,201. Breakwater repairs were performed using the U.S. Cranebarge MANITOWOC at a cost of \$125,535. Real estate and supervision and administration cost \$72,554.

Existing project is complete except for inactive portions. The 1962 modification was completed in July 1967. North breakwater and shore connection, 9,954 feet long, was completed in August 1925. North pier was completed in 1905 and construction of south pier was completed in November 1910. Construction of south breakwater and shore connection was completed in October 1929. Before modification of August 30, 1935, City of Milwaukee also dredged most

of the area in the outer harbor south of inner entrance piers and lakeward of pierhead line to more than 21 feet below datum without cost to the United States. City of Milwaukee also dredged a portion of the area of the outer harbor north of inner entrance piers to provide an approach channel to the passenger and auto pier opposite East Claybourn Street. Work on the 1945 modification was completed in August 1957, except for the uncompleted portion, which consists of dredging the Milwaukee River from Buffalo Street to upper limit of the project at Humboldt Avenue. The uncompleted portion of the project authorized by the 1945 Rivers and Harbors Act was deauthorized in 1977. Navigation structures range from fair to excellent condition. Total cost of the existing project to end of FY was \$76,443,460, of which \$8,231,024 was for new work, \$49,115,951 for maintenance (includes \$322,471 contributed funds), \$6,380,925 for diked disposal and \$12,715,560 for rehabilitation.

37. MONROE HARBOR, MI

Location. On lower reach of River Raisin, which empties into Lake Erie and is 36 miles south of Detroit, MI. (See NOAA Nautical Chart 14830.)

Existing Project. Provides for a channel in Lake Erie and River Raisin to city of Monroe, for a turning basin, and for riprapping protecting dikes at river mouth. Project depths are 21 feet to turning basin, 18 feet in turning basin, and 9 feet to upstream end of project. For additional details see page 1490 of Annual Report for 1962. Project feature for riprapping protecting dikes is considered inactive. Estimated cost of this feature (1954) is \$90,000. (See Table 21-B for authorizing legislation.)

The WRDA of 1986 authorized modifications to deepen the River Raisin portion of the existing 200-foot navigation channel from 21 to 27 feet between existing turning basin and the river's mouth; deepen the lake channel from 21 to 28 feet, and widen the channel from 200 to 500 feet, for a distance of approximately 47,000 feet from the river's mouth to the Maumee Bay Entrance Channel; dredge a new turning basin 24 feet deep, with a diameter of at least 1,600 feet, at the river's mouth; and construct a 190 acre confined disposal area in Plum Creek Bay behind which would enable the creation of a 700 acre marsh. Estimated total cost (Oct. 88) is \$150,200,000; \$59,000,000 Federal and \$91,200,000 non-Federal, which includes a cash contribution of \$19,650,000.

Local Cooperation. Fully complied with for completed portion of project. Local cooperation items for the newly authorized project in the WRDA of 1986

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(PL 99-662), are as described in the Rivers and Harbors Committee Document 22, 71st Congress, 1st Session; R & H Comm. Doc. 12, 72d Congress, 1st Session, and 45, 75th Congress, 1st Session, and also includes, as a result of PL 99-662, construction cost sharing as follows:

a. Contribute in cash 25 percent of the total cost of construction of general navigation facilities, exclusive of aids to navigation, a contribution presently estimated at \$19,650,000. The estimated cash contribution of \$19,650,000 to be paid in lump sum prior to initiation of construction, or in annual installments during the construction period at a rate proportionate to the proposed or scheduled expenditure of Federal funds as required by the Chief of Engineers, or under another arrangement satisfactory to the Secretary of the Army, the final apportionment of cost to be made after actual costs have been determined;

b. Repay, with interest, over a period of up to 30 years following project completion, 10 percent of the total cost of construction of general navigation facilities, an amount presently estimated at \$7,860,000. The Secretary of the Army may count against all or part of the 10 percent repayment, the amount of the local contribution for lands, easements, rights-of-way, dredged/demolition material disposal sites and relocations. In no case are these costs to count against the cash payment during construction, and in no case would the amount waived exceed 10 percent of project cost; and

c. The confined dike area construction is a non-Federal responsibility and is estimated to cost \$70,156,000.

Terminal Facilities. Several privately owned docks and a municipal terminal. Port of Monroe Authority built a steel and concrete wharf on southeast side of turning basin for commercial use. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces cost \$81,718. Maintenance of the confined disposal facility performed by hired labor cost \$5,927. A contract was awarded this FY for maintenance dredging in the amount of \$391,879. The contract was 67% complete at the end of the FY, removing approximately 103,563 cubic yards of shoal material at a cost of \$262,737. Engineering, design, real estate, surveys, and supervision and administration cost \$81,183.

Total cost of the existing project to end of FY was \$62,440,697, of which \$987,340 was for new work (includes \$300,000 contributed by the Port Commission of Monroe) \$22,763,775 for maintenance (includes \$166,667 contributed funds: \$125,000 by Consolidated Paper Company and \$41,667 by River Raisin Company) and \$38,689,582 for diked disposal (includes \$83,182 contributed funds).

38. MUSKEGON HARBOR, MI

Location. On east shore of Lake Michigan, 114 miles northeasterly from Chicago, IL, and 80 miles easterly from Milwaukee, WI. (See NOAA Nautical chart 19434.)

Previous Project. For details see page 1950 of Annual Report for 1915; page 1399, Annual Report for 1924; and page 1484, Annual Report for 1938.

Existing Project. A breakwater protected outer basin in Lake Michigan and an entrance channel from Lake Michigan to Muskegon Lake protected by piers and revetments. Project depths vary from 29 feet in the lakeward portion of the outer basin to 27 feet in the channel between the inner piers to Muskegon Lake. For additional details see page 1303 of Annual Report for 1963. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Several privately owned wharves primarily for commercial use. Details on actual port and harbor facilities are in Port Series, No. 48 (revised 1981) prepared and published by the Water Resources Support Center. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, and miscellaneous inspections and reports performed by Government forces cost \$50,838. Safety maintenance performed by hired labor cost \$12,111. Engineering and design for future maintenance dredging was initiated at a cost of \$27,504. Supervision and administration to closeout maintenance dredging contract completed last FY cost \$7,888.

Existing project, including latest project modification, was completed in 1965. For additional details on completion of existing project see page 1465 of Annual Report for 1962. Navigation structures are in good condition. Total cost of the existing project to end of FY was \$31,569,031, of which \$3,017,110 was for new

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work, \$14,727,621 for maintenance, and \$13,824,300 for rehabilitation.

39. NEW BUFFALO HARBOR, MI

Location. At mouth of Galien River on southeast shore of Lake Michigan in Berrien County, about 45 miles easterly from Chicago, IL. (See NOAA Nautical Chart 14905.)

Existing Project. Provides for an entrance channel 10 feet deep by 80 feet wide and 850 feet long, to mouth of Galien River; new north and south breakwaters 1,305 and 740 feet long, respectively, and deepening inner channel to Galien River to 8 feet and 80 feet wide and 1,250 feet long. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. One village owned boat ramp and three privately operated marinas, and a private boat club facility.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces cost \$38,769. Safety maintenance performed by hired labor cost \$5,116. A contract was awarded and completed this FY for maintenance dredging, removing 11,781 cubic yards of shoal material at a cost of \$67,124. Engineering, design, surveys and supervision and administration cost \$67,162.

Existing project is complete. The North and South Breakwaters are in fair condition. It is anticipated repairs will be required within the next five years. Total cost of the existing project to end of FY was \$8,250,300, of which \$2,472,183 was for new work (includes \$1,186,467 contributed funds), \$5,596,617 for maintenance, and \$181,500 for diked disposal.

40. OCONTO HARBOR, WI

Location. On the west shore of Green Bay, about 31 miles northeasterly from Green Bay Harbor, WI and about 25 miles southwesterly from Menominee Harbor, MI and WI, at mouth of Oconto River. (See NOAA Nautical Chart 14910.)

Previous Project. For details see page 1187 of Annual Report for 1958.

Existing Project. See Chicago District Annual Report 1979, Table 30-C, page 30-27. For detailed description see page 1187, Annual Report for 1958. (See Table 31-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Two municipally owned wharves of 400 and 100 foot frontage, respectively, for miscellaneous freight, open to general public use. Facilities considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost \$2,409.

Navigation structures are in good condition. Total cost of the existing project to end of FY was \$2,606,585, of which \$130,754 was for new work and \$2,475,831 for maintenance.

41. ONTONAGON HARBOR, MI

Location. About 140 miles east of Duluth, MN, on south shore of Lake Superior, at mouth of Ontonagon River; provides the only refuge for small craft between the Keweenaw Waterway upper entrance and Black River Harbor. (See NOAA Nautical Chart 14965.)

Previous Project. For details see page 1931 of Annual Report for 1915, and page 1406 of Annual Report for 1938.

Existing Project. Provides for approach channel 16 feet deep, a channel between piers with 17- and 15-foot depths, an inner basin 12 feet deep, and maintenance of channels, basin, and entrance piers. Completed project cost \$19,619. See page 1100 of Annual Report for 1966 for details. A modification authorized by 1962 River and Harbor Act provides for increasing depths of channels, construction of an inner basin and a sedimentation basin. (See Table 21-B for authorized legislation.)

The turning basin feature of the project for navigation at Ontonagon Harbor, Ontonagon County, MI, authorized by the River and Harbor Act of 1962, was deauthorized by the WRDA of 1986; PL 99-662 (Section 1002) Nov. 17, 1986, 99th Congress, Title X. The channel modification project authorized by the 1962 River and Harbor Act was deauthorized Dec. 31, 1989, in accordance with Section 1001 of the WRDA of 1986 (PL 99-662).

Local Cooperation. None required.

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Terminal Facilities. There are no publicly owned wharves. There are three coal wharves, an oil receiving facility, and a few small fish wharves. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces and contract cost \$101,661. Breakwater repairs were performed using the U.S. Derrickbarge SCHWARTZ at a cost of \$66,175. The contract awarded last FY for repair of the East and West Piers, Section A, failed tie rods, was completed this FY at a cost of \$218,171. (This does not include Coast Guard funds expended in the amount of \$26,145.) A multi-year contract was awarded this FY for maintenance dredging. The basic requirement for this work was awarded in the amount of \$355,509. The basic requirement was exercised and completed this FY, removing 71,755 cubic yards of shoal material at a cost of \$431,121. Engineering, design, surveys, and supervision and administration cost \$107,558. Disposal actions continued for transfer of the lighthouse to the Ontonagon County Historical Commission at a cost of \$14,879.

All work authorized under previous Acts was completed in 1938. Navigation structures range from fair to excellent condition. Several areas along the piers have had tie rod failures and repairs are underway. Total cost of the existing project to end of FY was \$27,673,236, of which \$953,903 was for new work, \$26,698,333 for maintenance and \$21,000 for diked disposal.

42. PENTWATER HARBOR, MI

Location. On east shore of Lake Michigan, 146 miles northeasterly from Chicago, IL, and 14 miles southerly from Ludington, MI. (See NOAA Nautical Chart 14907.)

Existing Project. Provides for widening old entrance channel to 150 feet between parallel piers and revetments, channel to extend from Lake Michigan to Pentwater Lake, with a depth of 16 feet. Piers and revetments are built of stone filled timber cribs and piling and capped with concrete. The 200-foot extension to south pier portion of project is considered inactive. Estimated cost (1954) of this portion is \$65,100. (See Table 21-B for authorizing legislation.)

Local Cooperation. None required.

Terminal Facilities. Several small privately owned wharves on west end of Pentwater Lake. The City and Michigan Waterways Commission jointly constructed a dock on northwest side of Pentwater Lake for public use. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, and miscellaneous inspections and reports performed by Government forces cost \$31,124. Safety maintenance performed by hired labor cost \$5,473. Acquisition of real estate easement cost \$22. A contract for maintenance dredging was awarded and completed this FY, removing 4,216 cubic yards of shoal material at a cost of \$37,389. Engineering, design, surveys, and supervision and administration cost \$5,081.

Existing project was completed in 1959 except for a 200-foot extension to the south pier, which is not considered necessary under present conditions. For additional details see page 1468 of Annual Report for 1962. Navigation structures are in excellent condition. Total cost of the existing project to end of FY was \$15,401,716, of which \$179,899 was for new work, and \$15,221,817 for maintenance.

43. POINT LOOKOUT HARBOR (AU GRES RIVER), MI

Location. At Au Gres River on westerly shore of Lake Huron at entrance to Saginaw Bay, about 17 miles northeast of mouth of Saginaw River. (See NOAA Nautical Chart 14863.)

Existing Project. Provides for construction of a small boat harbor having a 12-foot deep, 100-foot wide, 2,800-foot long outer entrance channel; a 5,600-foot long, 100-foot wide inner entrance channel having a 10-foot depth; an 8,270-foot long, 6-foot deep river channel ending just downstream from U.S. 23 highway bridge and having a width of 60 feet; a 4,000-foot long north breakwater and a 3,800-foot long south breakwater. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Small boat marina facilities are under construction by the State of Michigan.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost \$11,104.

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Existing project was completed in 1974. Navigation structures are in good condition. Total cost of the existing project to end of FY was \$7,330,428 of which \$2,642,584 was for new work, \$4,566,244 for maintenance (includes \$9,257 contributed funds) and \$121,600 for diked disposal.

44. PORT AUSTIN HARBOR, MI

Location. On west shore of Lake Huron at extreme southeastern limit of Saginaw Bay, and 29 miles south of AuSable River (Oscoda). (See NOAA Nautical Chart 14863.)

Existing Project. A harbor of refuge at the mouth of Bird Creek, consisting of a harbor basin dredged to a depth of 10 feet protected by a breakwater structure, and for dredging an entrance channel to the harbor basin to a depth of 12 feet. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. A number of docks near mouth of Bird Creek and a State-owned dock inside breakwater. Facilities accommodate recreational craft and are considered adequate for existing traffic.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces cost \$12,347. Safety maintenance performed by hired labor cost \$7,368. Engineering and design for future maintenance dredging continued at a cost of \$4,953.

Navigation structures are in good condition. Total cost for existing project to end of FY was \$5,572,398; of which \$3,363,334 was for new work (includes \$172,100 contributed funds), \$2,050,064 for maintenance and \$159,000 for diked disposal.

45. PORT SANILAC HARBOR, MI

Location. On southwest shore of Lake Huron, 30 miles north of Port Huron, MI. (See NOAA Nautical Chart 14862.)

Existing Project. Provides for a harbor of refuge protected by breakwater structures extending to 12-foot depth contour in lake; for dredging a harbor basin 10 feet deep; for dredging an entrance channel 12 feet deep; a 70-foot extension of the south breakwater; a 300-foot arm added to the north breakwater; and riprap

placed at the lakeward side of the breakwater addition. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. There is one privately owned dock used principally as a fishing terminal by owner and a municipally owned pier for recreational craft. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost \$17,362. A contract for maintenance dredging was awarded this FY in the amount of \$70,850. The contract was 84% complete at the end of FY, removing approximately 15,460 cubic yards of shoal material at a cost of \$59,825. Engineering, design, surveys, and supervision and administration cost \$41,052. Monitoring in connection with Section 111 of P.L. 90-483 cost \$29,863. Engineering and design for Section 111 mitigation of shore damage contract continued at a cost of \$27,630. Sediment sampling cost \$9,844.

The project was completed in 1951 except for latest modification that was completed in FY 76. The breakwaters are in good condition, with miscellaneous repairs programmed in the next 5 years. Total cost of the existing project to end of FY was \$5,919,415, of which \$1,733,071 was for new work (includes \$487,108 contributed funds), \$4,177,186 for maintenance (includes \$115,000 contributed funds) and \$9,158 for diked disposal.

46. PORT WASHINGTON HARBOR, WI

Location. On the west shore of Lake Michigan, about 53 miles south of Manitowoc and about 29 miles north of Milwaukee, WI. (See NOAA Nautical Chart 14904.)

Previous Project. For details, see page 1938 of Annual Report for 1915, page 1459 of Annual Report for 1938, and page 30-14 of Chicago District Annual Report for 1975.

Existing Project. See Chicago District Annual Report for 1979, Table 30-C, page 30-27.

Construction of a small boat harbor within the existing harbor was authorized by the Chief of Engineers, June 12, 1975, under authority of Section 107, 1960 River and Harbor Act, as amended.

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Local Cooperation. Fully complied with.

Terminal Facilities. There is one coal wharf, a petroleum tank farm and several fishing wharves. City provided a wharf which is open to public use. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces cost \$26,792. Safety maintenance performed by hired labor cost \$4,200. A contract for maintenance dredging was awarded this FY in the amount of \$226,920. The contract was 82% complete at the end of FY, removing approximately 11,480 cubic yards of shoal material at a cost of \$185,595. Engineering, design, surveys, and supervision and administration cost \$84,364.

The existing project was completed in 1936. The 1958 modification was deauthorized in 1977. Navigation structures range from fair to good condition. Total cost of the existing project to end of FY was \$8,031,474, of which \$4,206,204 was for new work (includes \$1,624,000 contributed funds), \$3,814,649 for maintenance and \$10,621 for diked disposal.

47. PORT WING HARBOR, WI

Location. On south shore of Lake Superior, 34 miles easterly from Duluth, MN. (See NOAA Nautical Chart 14966.)

Existing Project. Provides for two parallel piers at entrance, 835 and 1,017 feet long, respectively, 200 feet apart; an entrance channel between piers 150 feet wide with 15-foot depth; an irregular-shaped turning basin 15 feet deep at inner end of piers from which two inner channels with 8-foot depth extend. One of these is 60 feet wide extending southerly for 340 feet and one 70 feet wide extending easterly 1,170 feet.

Portion of dredging entrance channel to complete project width and depth is considered unnecessary to meet present navigation requirements. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. There are four privately owned fishing wharves which are considered adequate for existing conditions.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces and contract cost \$5,027. The contract awarded last FY for maintenance dredging was completed this FY, removing 11,398 cubic yards of shoal material at a cost of \$60,441. Supervision and administration to closeout the contract cost \$9,079.

Existing project is complete, except channel between piers, and has been dredged to only a 100-foot width. Widening the channel an additional 50 feet was considered unnecessary to meet present navigation requirements. That work was classified inactive and deauthorized on August 5, 1977, under Section 12 of Public Law 93-251. Land owned by the United States totals 7.80 acres. Navigation structures are in fair condition. Total cost of the existing project to end of FY was \$1,885,279, of which \$63,393 was for new work and \$1,821,886 for maintenance.

48. PORTAGE LAKE HARBOR, MI

Location. On east shore of Lake Michigan about 186 miles northeasterly from Chicago, IL, and about 37 miles northerly from Ludington, MI. (See NOAA Nautical Chart 14939.)

Existing Project. Provides for a harbor of refuge with an entrance channel from Lake Michigan to Portage Lake protected by piers and revetments. Project depth is 18 feet. For additional details see page 1297 of Annual Report for 1958. (See Table 21-B for authorizing legislation.)

Local Cooperation. None required.

Terminal Facilities. There are landing places and marinas at inner end of Portage Lake. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, and miscellaneous inspections and reports performed by Government forces cost \$46,639. The FY01 contract for repair of the North and South Piers, Sections A&B, (Phase I) was completed this FY at a cost of \$678,607. Engineering and design during construction cost \$59,303. Engineering and design for repair of the North and South Revetment (Phase II) continued at a cost of \$9,434. An adjustment of \$182 was made in contract costs for maintenance dredging completed last FY. Engineering, design, surveys, and supervision and administration cost \$129,456.

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Existing project was substantially completed in 1912. For additional details on completion of existing project see page 1298 of Annual Report for 1958. Navigation structures are in generally poor condition and major repairs are underway. Total cost of the existing project to end of FY was \$8,996,846 of which \$256,129 was for new work and \$8,740,717 for maintenance.

49. PRESQUE ISLE HARBOR, MI

Location. On south shore of Lake Superior at Marquette, MI. It is an indentation about 1.5 miles long and one-half mile wide in shore behind Presque Isle Point. (See NOAA Nautical Chart 14970.)

Existing Project. A breakwater off Presque Isle Point and dredging harbor to depth of 28 feet at inner portion with 30 feet at entrance. For details see page 1021 of 1965 Annual Report. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. One merchandise and petroleum receiving wharf and one ore dock. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost \$2,789. Breakwater repairs were performed using the U.S. Derrickbarge SCHWARTZ at a cost of \$77,978. Supervision and administration cost \$8,008.

Navigation structures are in good condition. Total cost of the existing project to end of FY was \$3,280,040, of which \$1,252,192 was for new work, \$1,934,848 for maintenance, \$16,500 for diked disposal and \$76,500 for rehabilitation.

50. ROUGE RIVER, MI

Location. Rises in Oakland and Washtenaw Counties, MI, 30 miles long, flows southeasterly through Wayne County, and joins Detroit River at westerly limit of city of Detroit. (See NOAA Nautical Chart 14854.)

Previous Project. For details see page 1530 of Annual Report for 1932, and page 1558 of Annual Report for 1938.

Existing Project. Provides for: (a) Main channel

from Detroit River through Short Cut Canal extending to upstream limit of the project, a distance of 3.5 miles. Project depths are 25 and 21 feet in navigation channel, 21 feet in turning basin, and 13 feet in upper reach of project. (b) Old Channel from Detroit River extending to junction of Old Channel with Short Cut Canal. Project depths are 25, 18, 17, and 21 feet. For additional details see page 1324 of Annual Report for 1963. In 1973, work authorized by the 1962 River and Harbor Act was reclassified from the active to inactive category. Estimated cost (1972) of this work is \$880,000. Except for dredging 25-foot channel 1,150 feet upstream from mouth of Old Channel, work authorized in Act of Aug. 30, 1935, is considered inactive. Estimated cost (1958) of inactive portion is \$255,000. Work authorized by Act of July 3, 1958, is considered inactive. Estimated cost (1960) of this work is \$210,000. (See Table 21-B for authorizing legislation.)

Local Cooperation. Act of Oct. 23, 1962, requires local interests to provide lands and rights-of-way for construction upon request of the Chief of Engineers; hold the United States free from damages; provide terminal facilities to accommodate prospective commerce considered in report of District Engineer; dredge and maintain areas between the Federal improvement and terminal facilities to depths commensurate with improved Federal channel; make alterations in docks, bulkheads and other structures, and take such other measures as may be necessary to assure stability of banks adjacent to channel; and provide bridge protection. The assurances of local cooperation for the River and Harbor Act of 1962 were furnished by the Michigan State Waterways Commission and accepted on Jan. 7, 1965. Fulfillment of all items of local cooperation has not been accomplished.

Terminal Facilities. Numerous large commercial docks for handling various type cargo. Details on actual port and harbor facilities are contained in the Port Series No. 45 (revised 1984) prepared and published by the Water Resources Support Center. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, confined disposal facility monitoring, and miscellaneous inspections and reports performed by Government forces and contract cost \$211,074. The contract for maintenance dredging awarded last FY was completed this FY, removing 65,531 cubic yards of shoal material at a cost of \$583,248. Engineering, design, surveys, and supervision and administration cost \$80,287.

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Work authorized before 1962 modification is complete or deauthorized. For additional details on completion of existing project see Annual Report for 1962. Total cost of the existing project to end of FY was \$40,071,726, of which \$675,251 was for new work (\$29,563 was expended from Emergency Relief Act Funds), \$24,489,157 for maintenance and \$14,907,318 for diked disposal.

51. SAGINAW RIVER, MI

Location. Formed by union of Tittabawassee and Shiawassee Rivers, 22 miles long, and flows northerly into extreme inner end of Saginaw Bay, Lake Huron. Cities of Saginaw and Bay City are on the river. (See NOAA Nautical Chart 14867.)

Previous Project. For details, see page 1957 of Annual Report for 1915; and page 1550 of Annual Report for 1938.

Existing Project. Provides for an entrance channel 27 feet deep and 350 feet wide from 27-foot contour in Saginaw Bay to river mouth; thence a channel 26 feet deep and 200 feet wide to New York Central Railroad Bridge at Bay City; thence 22 feet deep and 200 feet wide to C&O Railroad Bridge in Saginaw; thence 16.5 feet deep and 200 feet wide to upstream limit at Green Point. Project also provides for five turning basins; one 25 feet deep at Essexville, 600 feet wide with a maximum length of 1,850 feet; one 22 feet deep on east side of channel about 1 mile upstream from Cass Avenue in Bay City, 650 feet wide and 1,000 feet long; one 20 feet deep at Carrollton, 100 to 300 feet wide and 900 feet long; one 20 feet deep downstream from C&O Bridge in Saginaw, 650 feet wide and 1,000 feet long; and one 15 feet deep between Bristol Street Bridge and New York Central Railroad Bridge in Saginaw. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Numerous large commercial docks for handling a great variety of cargo. Details on actual port and harbor facilities are in Port Series No. 45 (revised 1984) prepared and published by the Water Resources Support Center. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, confined disposal facility monitoring, support of water control center and miscellaneous inspections and reports performed by Government forces and contract cost \$404,099. Dredged material management plans study for the Upper Saginaw River continued at a cost of

\$185,228. Maintenance of confined disposal facility performed by hired labor cost \$107,792. The FY02 contract for maintenance of the confined disposal facility and maintenance dredging of the bay and river was completed this FY, removing 261,992 cubic yards of shoal material at a cost of \$1,405,722. Engineering and design for maintenance dredging contract of the bay and river to be awarded next FY was initiated at a cost of \$67,816. Surveys, and supervision and administration cost \$131,248.

Existing project is complete except for small part of the work authorized by the Act of October 23, 1962. Section D (Sixth Street Turning Basin) of the 1962 Act is complete except for the channel portion, which is pending modification. Total cost of the existing project to end of FY was \$101,339,902, of which \$14,930,727 was for new work (includes \$13,600 for contributed funds), \$65,457,287 for maintenance, and \$20,951,888 for diked disposal.

52. ST. CLAIR RIVER, MI

Location. A 40 mile long section of Great Lakes connecting channels which flows southerly from Lake Huron and discharges into Lake St. Clair. (See NOAA Nautical Chart 14852.)

Existing Project. Provides for channels through St. Clair River, which, at low water datum, are suitable for vessels drawing 25.5 feet. Project also provides for improvement of North Channel outlet, 100 feet wide and 10 feet deep, for recreational craft. Project depths are referred to low water datums for Lakes Huron and St. Clair; 577.5 and 572.3 feet above mean water level at Rimouski, Quebec, IGLD 1985. (See Tables 21-B and 21-H for authorizing legislation and features of existing project.) Act of July 24, 1946, provides for widening and deepening of southeast bend and improvement of outlet of north channel at an estimated cost (1986) of \$870,000; \$435,000 Federal and \$435,000 non-Federal. On June 16, 1969, the Director of Civil Works approved substitution of the middle channel of the St. Clair River for the authorized north channel. Subsequently, however, the work authorized by the River and Harbor Act of July 24, 1946, was deauthorized by the WRDA of 1986; PL 99-662, Nov. 17, 1986, 99th Congress, Title X.

Local Cooperation. None required.

Terminal Facilities. This improvement serves through commerce, between the upper and lower Great Lakes, and has not materially influenced terminal facilities along its route. A number of privately owned

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piers and wharves are at Port Huron, Marysville, St. Clair, and Marine City, MI, which handle coal, limestone, petroleum products, wood-pulp, salt and general cargo. These installations satisfy present commerce requirements.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, support of water control center, and miscellaneous inspections and reports performed by Government forces cost \$134,933. Dredged material management plan studies was continued at a cost of \$58,558. Location and removal of obstructions was performed using the U.S. Cranebarge VELER and Survey Vessel WHEELER at a cost of \$183,692. An equitable adjustment of \$61,896 was made in contract cost and an adjustment of 2,883 in cubic yards for FY00 maintenance dredging completed in FY01. Surveys, real estate, and supervision and administration cost \$104,057.

Existing project is complete. Total cost of the existing project to end of FY was \$51,090,223, of which \$19,213,246 was for new work and \$31,876,977 for maintenance.

53. ST. JOSEPH HARBOR, MI

Location. On east shore of Lake Michigan, 60 miles easterly from Chicago, IL, and 24 miles southerly from South Haven, MI. (See NOAA Nautical Chart 14930.)

Previous Project. For details see page 1945 of Annual Report for 1915, and page 1470 of Annual Report for 1938.

Existing Project. Provides for protecting mouth of St. Joseph River by two piers, 250 to 325 feet apart at their inner and outer ends, respectively, having lengths of 2,758 feet on north side and 2,603 feet on south side; for a channel 21 feet deep from Lake Michigan to mouth of Benton Harbor Canal, a length of about 6,900 feet with widths of 265 feet at outer end of piers, 190 feet at inner end of piers and revetments, thence generally 215 feet to lower end of turning basin, increasing to 250 feet above the turning basin to mouth of Paw Paw River, thence generally 110 feet in Paw Paw River to mouth of Benton Harbor Canal; for dredging channel in Benton Harbor Canal up to west line of Riverview Drive extended northerly, to 18 feet deep and 80 feet wide; and a turning basin 18 feet deep on north side of channel above mouth of Morrison Channel and a turning basin 18 feet deep near mouth of Paw Paw River. Public Law 88-88 declared a portion of Benton Harbor Canal a non-navigable stream. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Several commercial wharves for handling coal, building materials, petroleum products, and miscellaneous commodities. A package freight terminal and a public docking facility is also available. Facilities considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces cost \$239,208. Environmental activities for a disposal area and polluted dredged material continued at a cost of \$80,976. Safety maintenance performed by hired labor cost \$6,946. An adjustment of \$47,163 was made in contract costs to the basic requirement of the multi-year contract for maintenance dredging the outer channel completed last FY. Option year one was exercised this FY in the amount of \$300,698. Option one was 25% complete at the end of the FY, removing approximately 6,000 cubic yards of shoal material at a cost of \$64,061. This contract was also for beach nourishment. Engineering, design, real estate, surveys, and supervision and administration cost \$63,439. Monitoring in connection with Section 111 of P.L. 90-483 cost \$53,072. Beach nourishment in conjunction with the above maintenance dredging of the outer channel contract cost \$15,662. Supervision and administration under Section 111 cost \$3,638.

Existing project was completed in 1956. For additional details on completion of existing project see page 1454 of Annual Report for 1962. Navigation structures are in generally good condition. Total cost of the existing project to end of FY was \$34,890,396, of which \$1,804,485 was for new work, \$31,485,619 for maintenance, \$638,076 for diked disposal and \$962,216 for rehabilitation.

54. SAUGATUCK HARBOR AND KALAMAZOO RIVER, MI

Location. Harbor is on east shore of Lake Michigan, 90 miles northeasterly from Chicago, IL, and 22 miles northerly from South Haven, MI. (See NOAA Nautical Chart 14906.)

Previous Project. For details see page 1947 of Annual Report for 1915, and page 1475 of Annual Report for 1938.

Existing Project. Entrance channel protected by parallel piers at mouth of Kalamazoo River and a river

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channel to village of Saugatuck, MI. Project depths: 16 feet in entrance channel, 14 feet in river channel. Additional details on page 1456 of 1962 Annual Report. (See Table 21-B for authorizing legislation.)

Local Cooperation. None required.

Terminal Facilities. At city of Saugatuck, MI, there are several landing places for recreational craft and one for small commercial vessels. At village of Douglas, MI, there is a landing pier. Facilities are considered adequate for present traffic.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, and miscellaneous inspections and reports performed by Government forces cost \$19,889. Safety maintenance performed by hired labor cost \$2,985. Engineering and design for repair of the North and South Pier, Sections C-F, (Phase II), continued at a cost of \$1,968.

Existing project was completed in 1903. Navigation structures are in excellent to poor condition and are programmed for major repair. Total cost of the existing project to end of FY was \$10,571,239, of which \$364,527 was for new work and \$10,206,712 for maintenance.

55. SAXON HARBOR, WI

Location. On the south shore of Lake Superior in Wisconsin at the mouth of Oronto Creek, 27 miles southeast of the harbor at Bayfield, WI, and 21 miles westerly of the harbor at Black river, MI; 99 miles east of Duluth-Superior Harbor and 60 miles west of Ontonagon Harbor, MI. (See NOAA Nautical Chart 14965.)

Previous Project. For details see page 1254 of Annual Report for 1962.

Existing Project. Provides for east and west breakwaters, an outer channel 10 feet deep, an inner basin and side channel 8 feet deep, and diversion of Oronto Creek to Parkers Creek by three short reaches of channel excavation and a levee. For detailed dimensions of features see page 1025 of Annual Report for 1965. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. One wharf 300 feet long on the east side of present harbor basin constructed by local interests.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost \$2,294.

The project was completed in March 1968. A reconnaissance report was completed in August 1971 concerning erosion of the shoreline west of the harbor. Navigation structures are in good condition. Total cost of the existing project to end of FY was \$1,927,205, of which \$711,777 was for new work and \$1,215,428 for maintenance. The new work cost does not include \$50,193 contributed funds.

56. SEBEWAING RIVER, MI

Location. At mouth of Sebewaing River on south shore of Saginaw Bay about 10 miles south of Bay Port, MI. (NOAA Nautical Chart 14863.)

Previous Project. For details see page 1007 of Annual Report for 1912.

Existing Project. Provides for an entrance channel 8 feet deep, 100 feet wide, and about 15,000 feet long in Saginaw Bay. (See Table 21-B for authorizing legislation.)

Terminal Facilities. A number of small wharves used by fishing vessels and other light-draft craft are along the river. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Limited dredged material management plans study continued at a cost of \$24,142.

Existing project was completed in 1903. Total cost of the existing project to end of FY was \$4,373,823, of which \$35,573 was for new work and \$4,338,250 for maintenance.

57. SHEBOYGAN HARBOR, WI

Location. On west shore of Lake Michigan about 26 miles south of Manitowoc and about 55 miles north of Milwaukee, WI. (See NOAA Nautical Chart 14922.)

Previous Project. See page 1381 of Annual Report for 1962.

Existing Project. See Chicago District Annual Report for 1979, Table 30-C, page 30-27.

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For detailed description see page 1230 of Annual Report for 1963. New work for project as completed cost \$648,271, exclusive of amounts expended on previous projects. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Three wharves for handling coal, petroleum products and miscellaneous commodities. City provided a public wharf. Facilities considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition and structure surveys, and miscellaneous inspections and reports performed by Government forces cost \$58,666. North Breakwater stone and South Pier Piling repairs were performed using the U.S. Cranebarge MANITOWOC at a cost of \$154,422. Engineering and design for repair of the South Pier, Sections I, J, K, continued at a cost of \$75,553. Real estate and supervision and administration cost \$52,810.

Existing project was completed in 1904. Construction of north breakwater was commenced in October 1913 and completed in October 1915. Dredging entrance channel to existing project depth was commenced in June and completed in July 1938. Work on 1954 modification was completed in December 1956. Inner 260 feet of south pier was replaced with a revetment by private interests under permit granted July 16, 1931, by the Secretary of War. Piers, therefore, are maintained only for a length of about 2,490 feet. Sheboygan River is navigable about 2.4 miles above its mouth for craft drawing not more than 2 feet. Navigation structures range from fair to good condition. It is anticipated repairs will be required in the next 5 to 7 years. Total cost of the existing project to end of FY was \$11,981,950, of which \$1,136,088 was for new work, \$9,329,042 for maintenance, \$907,792 for diked disposal and \$609,028 for rehabilitation.

58. SOUTH HAVEN HARBOR, MI

Location. On east shore of Lake Michigan, 77 miles northeasterly from Chicago, IL, and 24 miles northerly from St. Joseph, MI. (See NOAA Nautical Chart 14906.)

Previous Project. For details see page 1947 of Annual Report for 1915, and page 1473 of Annual Report for 1938.

Existing Project. An entrance channel protected by parallel piers and revetments at mouth of Black River,

a river channel and a turning basin. Project depths are 21 feet in entrance channel and 19 feet in river channel and turning basin. For additional details see page 1455 of Annual Report for 1962. The turning basin feature was subsequently deauthorized by Section 116 of the WRDA of 1992 (PL 102-580). (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. Several wharves for handling coal, building materials, wood-pulp, fish, and miscellaneous commodities; two have warehouses. Facilities satisfy current commerce requirements.

Operations During Fiscal Year. Maintenance: Condition surveys, environmental studies, and miscellaneous inspections and reports performed by Government forces cost \$38,166. Safety maintenance performed by hired labor cost \$4,058. (CORRECTION: The structure repair contract awarded last FY was for North Revetment, Sections D1, E, F1, F and G; not the North Pier, Sections A-C, (Concrete Caps)). The contract was completed this FY at a cost of \$636,195. Engineering and design during construction cost \$7,055. An adjustment of \$15,657 was made in contract cost and 1,011 in cubic yards to maintenance dredging completed last FY. Engineering, design, surveys, and supervision and administration cost \$135,561. Monitoring in connection with Section 111 of P.L. 90-483 was performed at a cost of \$21,225.

Existing project was completed in 1960. Project now being maintained to 14-foot and 12-foot depths, respectively (in lieu of the 21 feet and 19 feet authorized), which is adequate for current usage. For additional details on completion of existing project see page 1456 of Annual Report for 1962. Navigation structures are in good to fair condition and are under repair. Total cost of the existing project to end of FY was \$13,632,128, of which \$984,426 was for new work, \$10,973,245 for maintenance, \$42,381 for diked disposal and \$1,632,076 for rehabilitation.

59. STURGEON BAY AND LAKE MICHIGAN SHIP CANAL, WI

Location. On west shore of Lake Michigan about 52 miles northeast of Green Bay and about 128 miles north of Milwaukee, WI. (See NOAA Nautical Chart 14919.)

Previous Project. See page 1373 of Annual Report for 1962.

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Existing Project. See Chicago District Annual Report for 1979, Table 31-C, page 30-27. For detailed description, see page 1223, Annual Report for 1963. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. As the canal and connecting channel is a through waterway, only terminal facilities are in city of Sturgeon Bay, 4 miles from west end of revetted portion of canal. These facilities consist of two wharves for handling coal, petroleum products and miscellaneous commodities, and four shipbuilding yards. City of Sturgeon Bay provided a public wharf about 5 miles northwesterly from city of Sturgeon Bay. Two major shipyards are located in Sturgeon Bay where repair facilities are available including dry docks, marine railways and hoists. Facilities are considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, miscellaneous inspections and reports performed by Government forces cost \$81,880. Safety repairs performed by hired labor cost \$15,671. Engineering and design for repair of the South Revetment, Section N, continued at a cost of \$11,885.

Navigation structures are in good to fair condition, the South Revetment, Section N, is in poor condition and is programmed for major repair. Total cost of the existing project to end of FY was \$13,643,486, of which \$1,059,722 was for new work, \$11,387,746 for maintenance, \$311,119 for diked disposal and \$884,899 for rehabilitation. In addition, between April 25, 1893, and June 30, 1917, \$235,940 was expended for operating and care of works of improvements under provision of permanent indefinite appropriations for such purposes.

60. TWO HARBORS, MN

Location. Harbor is on north shore of Lake Superior, 27 miles northeasterly from Duluth, MN. (See NOAA Nautical Chart 14966.)

Existing Project. Narrowing natural entrance by construction of two breakwaters, 1,628 and 900 feet long, from eastern and western points of bay, respectively; and dredging a maneuvering area on north side of harbor to 28 and 30 feet deep. A walkway on east breakwater is provided for public recreational use. For details see page 1026 of Annual Report for 1965. Dredging to deepen areas along easterly and northerly edges of channel was completed in 1980. This portion

of project was reclassified from the "inactive" to "active" category in 1973. (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with. A section 221 local cooperation agreement was entered into with the City of Two Harbors on August 14, 1978.\

Terminal facilities. No publicly owned wharves. Three ore docks, tug wharf, an unused coal dock, and merchandise wharf are privately owned. Facilities considered adequate for existing commerce.

Operations During Fiscal Year. Maintenance: Condition surveys, and miscellaneous inspections and reports performed by Government forces cost \$18,002.

The existing project is complete. Navigation structures are in good condition. Total cost of the existing project to end of FY was \$9,444,159, of which \$4,170,710 was for new work and \$5,273,449 for maintenance.

61. TWO RIVERS HARBOR, WI

Location. On west shore of Lake Michigan about 82 miles north of Milwaukee and about 101 miles from Green Bay, WI, via Sturgeon Bay Canal. (See NOAA Nautical Chart 14903.)

Previous Project. See page 1377, Annual Report for 1962.

Existing Project. See Chicago District Annual Report for 1979, Table 30-C, page 30-28.

For detailed description see page 1226 of Annual Report for 1963. Completed project cost \$147,463, exclusive of the amount expended on previous projects. The 1935 River and Harbor Act portion of project is essentially complete, except for dredging a 10-foot width along each side of the entrance channel between the piers. The uncompleted portion of the project authorized by the 1935 R & H Act was deauthorized Dec. 31, 1989, in accordance with Section 1001 of the WRDA of 1986 (PL 99-662). (See Table 21-B for authorizing legislation.)

Local Cooperation. Fully complied with.

Terminal Facilities. A coal wharf and several fishing wharves. City provided a wharf for receipt of petroleum products and public use. Facilities considered adequate for existing commerce.

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Operations During Fiscal Year. Maintenance: Condition surveys and miscellaneous inspections and reports performed by Government forces cost \$34,000. Safety maintenance by hired labor cost \$1,212. The contract awarded last FY for repair of the South Entrance Pier was completed this FY at a cost of \$2,438,107. Engineering and design during construction cost \$12,507. Supervision and administration cost \$185,164.

Existing project is complete except for portion deauthorized in December 1989. Present width of channel is considered adequate for present and reasonably prospective commerce. North Pier was completed in 1908. North Revetment, completed in 1917, was rebuilt in May to August 1962. Dredging entrance channel and inner basin to existing project depth was commenced in March and substantially completed in May 1937. Navigation structures range from fair to good condition and are under repair. Total cost of the existing project to end of FY was \$12,937,997, of which \$360,320 was for new work, \$11,332,148 for maintenance, \$1,187,472 for diked disposal and \$58,057 for minor rehabilitation.

62. WHITE LAKE HARBOR, MI

Location. On the east shore of Lake Michigan 120 miles northeasterly from Chicago, IL, and 45 miles southerly from Ludington, MI. (See NOAA Nautical Chart 14935.)

Existing Project. Parallel piers, revetments, and a channel 16 feet deep, 200 feet wide, 1,950 feet long, extending from Lake Michigan to White Lake. For additional details see page 1465 of Annual Report for 1962. (See Table 21-B for authorizing legislation.)

Local Cooperation. None required.

Terminal Facilities. A privately owned chemical shipping dock on the north side of the lake about 3 miles from the inner end of revetted entrance channel. Across the lake, at village of Whitehall, there are several installations serving light draft vessels. These terminals satisfy present recreational and commercial traffic requirements.

Operations During Fiscal Year. Environmental activities, and miscellaneous inspections and reports performed by Government forces cost \$11,080. Monitoring in connection with Section 111 of P.L. 90-483 was performed at a cost of \$28,023.

Existing project was completed in 1908. Stone was placed on the north and south revetments in FY 1972. Project now being maintained to 14-foot depth authorized, which is adequate for current usage. Navigation structures are in excellent condition. Total cost of the existing project to end of FY was \$12,844,985, of which \$457,562 was for new work and \$12,387,423 for maintenance.

63. RECONNAISSANCE AND CONDITION SURVEYS

See Table 21-J.

64. OTHER AUTHORIZED NAVIGATION PROJECTS

See Table 21-C.

65. NAVIGATION WORK UNDER SPECIAL AUTHORIZATION

See Table 21-K.

BEACH EROSION CONTROL

66. AUTHORIZED BEACH EROSION CONTROL PROJECTS

River and Harbor Act of 1962, as amended, Beach Erosion Control. None.

67. EMERGENCY SHORE PROTECTION

See Table 21-L.

68. BEACH EROSION WORK UNDER SPECIAL AUTHORIZATION

See Table 21-M.

69. MITIGATION OF SHORE DAMAGES

See Table 21-N.

70. PROJECT MODIFICATION FOR IMPROVING THE QUALITY OF THE ENVIRONMENT

See Table 21-O.

FLOOD CONTROL

71. FORT WAYNE METRO AREA, IN

Location. Fort Wayne, which is located in northeastern Indiana in Allen County, is in the Maumee River drainage basin. In all, the Maumee basin covers an area of 6,586 square miles. Of this area, 4,856 square miles are in northwest Ohio, 1,260 are in northeast Indiana and 470 are in southeast Michigan. This basin is one of the largest and most important tributaries in the Great Lakes-St. Lawrence River system. There are four main tributary streams to the Maumee River: the Auglaize, Tiffin, St. Joseph and St. Marys Rivers. The St. Joseph and Tiffin Rivers originate in the hills of southern Michigan and flows southerly to the Maumee. The St. Marys and Auglaize originate in Ohio and flow northward. In the City of Fort Wayne, the St. Joseph and St. Marys Rivers join to form the headwaters of the Maumee River. From this point, the Maumee flows northeasterly and empties into Lake Erie at Toledo, Ohio. The central business district is located on the south side of the Maumee and the St. Marys Rivers. The St. Joseph River bisects primarily residential areas on the north side of the central business district. While some portions of the central business district are prone to flooding in the immediate vicinity of the St. Marys River, the majority of the business district is sufficiently elevated to avoid flood damages. The residential areas, however, are generally low lying and are prone to frequent flooding.

Existing Project. The Fort Wayne and Vicinity, Indiana, Flood Control Study was authorized by resolution of the Committee on Public Works, House of Representatives on October 12, 1972. The authorization requested that the Corps determine the advisability of providing improvements for flood control and allied purposes at and in the vicinity of Fort Wayne, Indiana. The study authorization resulted in completion of a Final Feasibility Report entitled "Fort Wayne and Vicinity, Indiana Flood Control Study," dated September 1987, and revised in April 1988, which identified and evaluated a number of different

alternatives to flood control in the Fort Wayne area. The Final Feasibility Report also contained the "Final Environmental Impact Statement" for this project. Preparation of the General Design Memorandum began in August 1989 and was approved in December 1993. Construction was authorized in Section 101 of the Water Resources Development Act of 1990 (Title 1 Public Law 101-640). This project was a Congressionally added new construction start in FY 1994. The Project Cooperative Agreement (PCA) was executed in August 1994 and construction was initiated in September 1995. The project will provide a 100-year level of flood protection to a large part of the central area of the City of Fort Wayne, Indiana that has experienced numerous flooding events in the past. The project is located along the north side of the St. Marys River, the east and west banks of the St. Joseph River, and the north bank of the Maumee River. Junk Ditch and Spy Run Creek which are tributary to the St. Marys River will also have protection installed or improved along their north and east banks respectively. The project area has been broken into four (4) segments that provide flood protection to various areas within the project limits. The West Segment is located along the St. Marys River and the Junk Ditch Tributary. The Central Segment is located along the Spy Run Tributary to the St. Marys River, a short section of the St. Marys River itself (at the confluence with the St. Joseph River), and along the west bank of the St. Joseph River. The East-North Segment is located along the east bank of the St. Joseph River and the East-South Segment is located along the north bank of the Maumee River. The total project length is approximately 54,000 feet. The project consists of several types of flood protection improvements. The most common type of flood protection improvements proposed are earth levees. The levees proposed are to have turf or rock protected slopes depending on the available space for their construction. Levees account for approximately 63 percent of the total project length. Concrete floodwalls are proposed in those areas where insufficient space exists to construct levees due to site constraints. Concrete flood walls account for 20 percent of the project length. An additional eight percent of the project length consists of a combination of a ½ Reduced levee and concrete L-Wall. The remaining length is composed of various types of road closures (stoplogs, clay dikes and high curbs), and 3,000 feet in several areas that do not require improvements due to adequate existing surface grades. The fully funded total project cost estimate is \$50,104,000. The Federal cost is \$37,222,000 and the non-Federal cost is \$12,882,000.

Local Cooperation. The non-Federal sponsors for the project are the City of Fort Wayne and Allen

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County. A Project Cooperation Agreement (PCA) was executed with the Mayor of Fort Wayne and the Allen County Board of Commissioners on 22 August 1994. Under the terms of the PCA, the non-federal sponsors shall contribute a minimum of 25 percent, but not to exceed 50 percent, of the total project costs attributed to flood control purposes. This shall consist of all required lands, easements, rights-of-way and relocations for the project; and a cash contribution equal to a minimum of five percent of the total project flood control cost. The Assistant Secretary of the Army (CW) has approved a credit in the amount of \$1,123,500 under Section 104 of the Water Resources Development Act of 1986. This will be applied to the non-Federal share of the project flood control cost. In addition to the above, the non-federal sponsor shall provide 50 percent of the total project recreation costs, 100 percent of all betterment costs, and shall operate and maintain all works after completion. Cash contributions totaling \$8,022,221 have been provided through the end of FY 03. Real estate requirements for the East-South Segment were completed on July 27, 1995, East-North Segment on July 19, 1996, Central Segment on November 11, 1997 and the West Segment on April 8, 1999.

Operations During Fiscal Year. FY03 expenditures of \$7,773 were made to finalize contract closeout and for the West (final) Segment. Of the funds expended, \$0 was contributed by the City of Fort Wayne and Allen County. Total cost to end of FY was \$45,276,984.

72. SAGINAW (FLINT) RIVER, MI

Location. Saginaw River Basin including its tributaries, Tittabawassee, Shiawassee, Flint and Cass Rivers, drains an area of 6,260 square miles in the east central part of Michigan and empties into Saginaw Bay, an arm of Lake Huron. Bay City, near mouth of river, and Saginaw, 22 miles upstream from mouth, are on Federally improved deep-draft Saginaw River navigation channel (See Saginaw and Flint Geological quadrangles and NOAA Nautical Chart 14867).

Existing Project. Provides for improvements in Saginaw River Basin for flood control and other purposes: (a) at Sanilac Flats, MI, Middle Branch and South Branch, Cass River, to provide for major drainage improvements by channel improvements on Middle and South Branches, including a short reach of East Branch. This feature of the project for flood control, Saginaw River, MI, authorized by the Flood Control Act of 1958, was deauthorized by the WRDA of 1986;

PL 99-662 - Nov. 17, 1986, 99th Congress, Title X; (b) at Vassar on Cass River, to provide for flood protection of areas on north and south sides of river by channel improvement, levee construction floodwalls, modifications of Moore Drain, and related work at an estimated U.S. cost (Oct. 1984) of \$8,620,000 and non-Federal cost of \$579,000 for construction; (c) at Frankenmuth on Cass River, to provide for flood protection of areas on north side of river by channel improvement, levee construction, and related work, at an estimated U.S. cost (July 1974) of \$410,900 for construction; (d) at Flint on Flint River, to provide for flood protection of areas on both sides of main stem of Flint River and its tributaries, Swartz and Thread Creeks by channel improvement, bridge alterations, floodwall and levee construction, and related work, at an estimated U.S. cost (Oct. 1984) of \$18,251,600 and non-Federal cost of \$2,580,000 for construction; provided local interests contribute in cash 1 percent of first cost of project, exclusive of cost of rights-of-ways; (e) at Corunna on Shiawassee River, to provide for flood protection by channel improvement, levee construction, and related work. This feature of the project for flood control, Saginaw River, MI, authorized by the Flood Control Act of 1958, was deauthorized by the WRDA of 1986; PL 99-662 - Nov. 17, 1986, 99th Congress, Title X; (f) at Owosso on Shiawassee River, to provide for flood protection by channel improvement. This feature of the project for flood control, Saginaw River, MI, authorized by the Flood Control Act of 1958, was deauthorized by the WRDA of 1986; PL 99-662 - Nov. 17, 1986, 99th Congress, Title X; (g) at Midland on Tittabawassee River, to provide for flood protection through non-structural (permanent evacuation) measures at an estimated U.S. cost (Apr. 1982) of \$5,125,000 and non-Federal cost of \$1,611,500 for implementation; however, project was reclassified to the "inactive" category on Dec.15, 1982; (h) at Shiawassee Flats along lower reaches of the four principal tributaries of Saginaw River, to provide for flood protection, including fish and wildlife areas; by channel improvement, levees, lateral reservoirs with control structures and related work at an estimated U.S. cost (Oct. 1984) of \$23,417,500 Federal and non-Federal cost of \$2,705,000 which includes a cash contribution of \$1,237,000; provided local interests contribute in cash 5 percent of cost of rights-of-way for flood control and other work required as local cooperation, and furnish one-half of land required for fish and wildlife areas; provided that the Federal allocation for conservation does not exceed amount obtained by taking 28 percent of project cost for Shiawassee Flats unit and subtracting this from one-half cost of lands for conservation; and provided further that before starting work for flood control to Shiawassee Flats,

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Chief of Engineers and Director, Fish and Wildlife Service, prepare a plan mutually acceptable to Secretary of the Army and Secretary of the Interior for operation of fish and wildlife areas to required degree of controlled storage of flood waters while preserving the maximum fish and wildlife benefits. Total estimated cost for new work, for active portion (1984) is \$50,700,000 Federal and \$1,421,000 to be contributed by local interests. Total estimated cost (1984) to local interests is \$5,870,000.

Local Cooperation. Responsible local interests must make cash contributions as called for above; furnish lands, and rights-of-way, including removal of buildings, for construction; hold the United States free from damage; maintain and operate all works after completion; establish and enforce regulations designed to prevent encroachments in improved channels; and bear expense of constructing highway relocations and highway bridges, alter bridge approaches and existing highway bridge approaches and existing highway bridges (except underpinning and bridge raising), and alter utilities. Required assurances for Flint River at Flint were furnished by city of Flint and accepted by the United States on Nov. 23, 1962. Estimated required cash contribution for Flint (\$56,000) was furnished Feb. 20, 1963. An additional \$117,000 was furnished by the City to cover increased construction costs. Required assurances for Cass River at Frankenmuth were accepted on Sep. 8, 1964. All necessary lands, easements, and rights-of-way have been provided. The Midland City Council adopted a resolution on Jun. 7, 1982, declaring its intent not to sponsor the Flood Control project on the Tittabawassee River at Midland. The Vassar City Council, in a letter dated Jan. 26, 1982, indicated a willingness and capability to provide the assurances of local cooperation for the Vassar Flood Control Project. Saginaw County, in a resolution dated Aug. 11, 1982, indicated a willingness and capability to provide the assurances of local cooperation for the Shiawassee Flats Flood Control Project.

Operations During Fiscal Year. Maintenance: No funds were expended in FY03. Construction on the FY99 inflatable dam replacement was substantially complete on 24 September 2001. The operation and maintenance responsibility was transferred to the City of Flint in FY02.

The Water Resources Development Act of 1996 (Public Law 104-303), Section 329, Saginaw River, Michigan @ modified Section 203 of the Flood Control Act of 1958 (PL 85-500) to include as part of the Project the design and construction of an inflatable dam. The Energy and Water Development Act of 1998

(Public Law 105-62) provided \$875,000 under the Operation & Maintenance, General appropriation for the preservation, operation, maintenance, and care of the Project, to replace the inflatable dam.

Total cost of the existing project to the end of the FY was \$31,382,190, of which \$24,928,359 was for new work (includes \$173,000 contributed funds) and \$6,453,831 for maintenance.

73. SEBEWAING RIVER, MI

Location. Sebewaing River drains an area of 105 square miles in Huron and Tuscola Counties on the westerly side of Thumb area of Lower Peninsula of Michigan and discharges into Saginaw Bay, an arm of Lake Huron, 20 miles northeast from mouth of Saginaw River. Village of Sebewaing is near mouth of River. (See NOAA Nautical Chart 14863.)

Existing Project. Enlarging present channel of Sebewaing River through village of Sebewaing, MI, to a capacity of 7,500 cubic feet per second from junction of Columbia and State drains to a point 4,500 feet lakeward from railroad bridge near mouth; altering railroad bridge and three highway bridges to permit free passage of ice; and removal of present dike on south side of channel lakeward from railroad bridge. Project is designed to provide protection for village of Sebewaing from floods with a frequency of once in 15 years and with a magnitude greater than the maximum flood of record. (See Table 21-B for authorizing legislation.)

Local Cooperation. Complied with except for furnishing easements and rights-of-way for removal of remaining portion of dike on south side of channel lakeward from railroad bridge.

Operations During Fiscal Year. Maintenance: Miscellaneous inspections and reports performed by Government forces cost \$7,950. Total costs to the end of FY were \$844,167 of which \$365,642 was for new work and \$478,525 for maintenance.

74. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

<u>NAME OF PROJECT</u>	<u>DATE OF INSPECTION</u>
Flint River, MI.....	Apr 2003
Clinton River Spillway & Cutoff, MI.....	Jul 2003
Red Run, Clinton River, MI	Jul 2003

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Operations During Fiscal Year. Maintenance: Miscellaneous inspections and reports performed by Government forces and contract cost \$113,473.

Total cost to the end of FY was \$3,969,520.

75. OTHER AUTHORIZED FLOOD CONTROL PROJECTS

See Table 21-E.

76. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Emergency Flood Control Activities, Flood Fighting (Public Law 84-99 and PL 93-288 and Antecedent Legislation).

<u>Project and Location</u>	<u>FY Cost for Sep 30, 2003</u>
Disaster Preparedness	\$228,814
Emergency Operations	\$20,281
Rehabilitation	\$36,574
Hazard Mitigation.....	\$4,744

Flood control activities pursuant to Section 205 of the 1948 Flood Control Act, as amended.

See Table 21-P.

Flood control activities pursuant to Section 208 of the 1954 Flood Control Act. Snagging and clearing activities pursuant to Section 208 of the Flood Control Act of 1954, as amended. None.

77. SURVEILLANCE OF NORTHERN BOUNDARY WATERS AND INTERNATIONAL WATER STUDIES

International Activities. The Detroit District has successfully supported the International Joint Commission (IJC) for many years. This has included numerous engineering and scientific assignments supporting the Commission's boards of control, working committees, and study boards.

The Detroit District conducted the following activities, specifically for the IJC Boards and Committees:

a. Semi-Annual Meetings. Members of the Detroit District staff attended the semi-annual meetings of the three Great Lakes Boards of Control. They also attended the spring and fall appearances of the Boards before the IJC, in Washington, D.C. in April 2003, and the fall appearances, in Ottawa, Ontario in October 2003.

b. International Lake Superior Board of Control. The Detroit District Engineer is the United States Regulation Representative of this Board. In support of the U.S. Section of the Board, the District provided monthly Lake Superior outflow recommendations based upon a review of the hydrologic factors that influence the monthly regulation decisions for Lake Superior. These recommendations were based upon the use of probability forecasts of water supplies routed through the lakes using the approved operating plan, Plan 1977-A. Plan 1977-A has been in operational use since June 1990. The District's program to evaluate the hydraulic rating of the Compensating Works in the St. Marys River was postponed in 2003 due to lower lake levels requiring only ½ gate open. During FY2003, flow measurements were conducted in the Edison Sault Electric Company power canals at Sault Ste. Marie, MI as part of an ongoing program to verify the power plant rating.

The Board is required by the IJC to hold at least one public meeting each year to inform them of the Board's activities and to solicit feedback regarding activities and current issues. As such, the District participated in the Board's FY2003 annual meeting held in Sault Ste. Marie, Ontario in June 2003. The District also disseminates extensive Board information to the public, the media and user interests via news releases, letters and the Board's web page.

Hydropower peaking and ponding causes flow and water level variations in the St. Marys River downstream of the power plants. With water levels and Lake Superior outflows below average, these fluctuations have become a concern to commercial navigation. The District provided significant technical support to the Board to evaluate this issue and make a recommendation on peaking and ponding operations in early 2002. The Board submitted a follow-up report on St. Marys River hydropower plant peaking and ponding operations to the IJC in December 2002. In March 2003, the IJC approved continuation of peaking and ponding until March 2004, subject to prior approval by the Board at the beginning and middle of each month. District staff provide ongoing technical support to the Board for these peaking and ponding recommendations.

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Starting in August 2001, the District participated on a binational study team, formed by the IJC. The team developed a Plan of Study to review the existing Orders of Approval, the current regulation plan (Plan 1977-A) and various beneficial uses not currently being considered. The "Upper Great Lakes Plan of Study for Review of the Regulation of Outflows from Lake Superior" was submitted to the IJC in January 2002. District staff will have significant roles in the study once the study is initiated by the IJC.

c. International Niagara Board of Control, International Niagara Working Committee, and International Niagara Committee. The District provides direct technical support and consulting engineering services to this Board and its Committees. The Chief of the Great Lakes Hydraulics and Hydrology Office is a member of the Niagara Working Committee. Under the auspices of the Committee, the Detroit District, with Canada, computes, coordinates, and publishes the monthly flows in the Niagara River.

The Detroit District and the Water Survey of Canada routinely conduct discharge measurements in the lower Niagara River at the Cableway Section. This is part of a continuing effort to verify the Ashland Avenue gage equations. The Ashland Avenue equations rate the flow out of the Maid-of-the-Mist Pool, which encompasses the total flow over the American and Canadian Falls, to ensure that the hydropower plants operate within the terms of the Niagara Treaty. Information is currently being evaluated to determine if the existing equations are adequate to represent the present hydraulic regime over the Niagara Falls. Discharge measurements for the Ashland Avenue rating curve are scheduled every three years. The last sets of measurements were made in 2001, and the next series of measurements are scheduled for FY2004.

Discharge measurements are also made routinely in the Welland Canal. These are part of the continuing effort to verify the ratings for the Welland Canal supply weir. Data collected to date indicates that the present equations may be underestimating the flow. Revision of the ratings is being evaluated. The last sets of measurements were made in 2001 and the next measurements at this section are scheduled for FY2004, in accordance with the three-year schedule.

Due to the dynamic nature of the Niagara River at the Niagara Falls, the District is also involved with periodic verification of the rating curve for the flow in the American Falls Channel and the Niagara River flow out of Lake Erie. Discharge measurements are made in the American Falls Channel on a five-year

schedule. The last set of measurements were made in 2000, and the next is scheduled for 2005.

Discharge measurements made at the International Railway Bridge Section are used in verifying the rating equations for the flow out of Lake Erie. The rating equation based on the Buffalo gage was recently revised based on measurements collected at this section since 1974. Measurements are made at the International Railway Bridge Section on a three-year schedule. The last set of measurements was made in 2003, and the next is scheduled for 2006.

d. Great Lakes Basin Studies The Detroit District participated in the International Lake Ontario - St. Lawrence River Study in 2003. The study was initiated in 2000 by the IJC to assess and evaluate the Commission's Order of Approval used to regulate outflows from Lake Ontario through the St. Lawrence River. The Study is evaluating the impacts of changing regulation and the resulting changes in water levels on environmental factors, shore erosion, flood damages, recreational boating, and tourism. The District provided technical support to the Coastal Technical Working Group and the Information Management Technical Working Group in 2003. This effort is expected to continue through the duration of the five-year study.

In FY2002 efforts were begun to develop a prioritization of areas on the upper Great Lakes (Lakes Superior, Huron, St. Clair, and Erie) that are susceptible to potential losses due to erosion, flooding, and low water. The analysis also identified available data for the upper Great Lakes that could be used in future studies. The importance of sensitive environmental issues, anthropogenic effects, and recreation and tourism were also prioritized on a county-by-county basis across the upper Great Lakes. This effort was completed in FY2003. Future investigations on other areas of the upper great Lakes will benefit from the results of this effort.

Coordinating Committee on Great Lakes Basic Hydraulic and Hydrologic Data. The Chief of the Great Lakes Hydraulics and Hydrology Office is the U.S. Secretary to this Committee. Other Office personnel also hold membership on the three subcommittees: the Vertical Control-Water Levels, Hydraulics, and Hydrology.

The District continued its support of Committee operations pertaining to the coordination of basic hydraulic and hydrologic data with Canada. District efforts have also continued to closely coordinate the formats of the U.S. and Canadian water level bulletins

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in order to avoid confusion and to better inform the public. In addition, the District continued working with NOAA's Great Lakes Environmental Research Lab (GLERL) with regard to improving the computational procedures currently employed in the Great Lakes 6-month water level forecast.

Efforts continued in 2003 on development of a coordinated Great Lakes regulation and routing model (CGLRRM). This model will be used to evaluate levels and flows in the Great Lakes system from Lake Superior to Lake Ontario. A user-friendly graphical user interface (GUI) is also being finalized. This GUI will allow the user to change input parameters easily to evaluate the effects of different scenarios on water levels. The CGLRRM has been developed under the guidance of the Coordinating Committee with support from Environment Canada, Buffalo District, and the Hydrologic Engineering Center (HEC).

During FY03, the District continued development and/or supported development of 2-dimensional hydrodynamic models of all the Great Lakes connection channels. These models will serve as valuable tools in answering the many "what if" questions that are asked about the rivers.

Field Operations. In addition to field operations conducted in support of the IJC, and as a continuing and ongoing mission, the Detroit District conducts hydraulic flow measurements throughout the Great Lakes Connecting Channels and St. Lawrence River system. This capability is unique among the Corps Districts (and other federal agencies) on the Great Lakes. During FY2003, the Detroit District continued gathering hydraulic data using the ADCP (Acoustic Doppler Current Profiler) instrumentation at several sections on the lower St. Marys River, the upper and lower Detroit River, the St. Clair River, the Niagara River and the St. Lawrence River. These hydraulic data sets are currently being used to develop two-dimensional flow models of the river systems, and to help refine the flow retardation estimates for weed conditions through the growing season.

As an ongoing mission, during the winter months the District monitors the extent of ice in the St. Marys, St. Clair, and Detroit Rivers. Water levels are monitored continuously at key water level gages in these rivers to detect possible ice jams and potential flooding. The Corps and other governmental agencies, including the National Weather Service and the Coast Guard, can use this information to provide advance warning to area residents and to trigger emergency actions. Currently, data are obtained through phone access of these gages or from a satellite data relay to the District's water

management data system and remote laptop personal computers. These systems provide water level information to the District office within minutes of data collection.

Water Management Data System. In FY2003, the Detroit District continued to provide an extensive variety of water management products for the entire Great Lakes system, based on the water level gage network, on its Internet web pages. Weather information and meteorological data are also received and processed within the District and available on the Internet. The Detroit District has 29 active data collection platforms (DCPs). In FY2003, the Detroit District continued implementation of the Corps of Engineers Water Management Software (CWMS) suite with its initial prototype development being placed on modernizing the Lake Winnebago watershed outflow management.

Great Lakes Hydrology. The Great Lakes Hydraulics and Hydrology Office uses water supply forecasts routinely in forecasting water levels on all the Great Lakes and regulating the outflows from Lake Superior. Studies to improve the existing Great Lakes water level forecasting system, including investigations into the factors affecting the Great Lakes water balance relationship (i.e., runoff, over-lake precipitation, evaporation, ice retardation, etc.) and use of real-time hydrologic data such as the new National Weather Service Doppler radar networks were continued during FY 2003.

Great Lakes Water Levels. The Great Lakes Hydraulics and Hydrology Office continued to make routine short-term (30 day) and long-term (six month) Great Lakes still water level forecasts. These forecasts are distributed in the form of weekly, semi-monthly and monthly news releases and bulletins. The Monthly Bulletin of Lake Levels for the Great Lakes, containing a six-month projection of Great Lakes water levels, has a circulation of about 9,000 copies per month. Included with the monthly bulletin on a quarterly basis is an informational enclosure entitled Great Lakes Update, which covers various topics of interest pertaining to the water resource management of the Great Lakes.

With water levels on the Great Lakes being well below average during FY 2003 and continuing into FY 2004, media and public attention has been high. Office personnel provided essential expertise regarding water level forecasts, recorded lake levels, and the potential impacts of these water levels on interested parties. These parties include members of Congress, state and local officials, news media, navigation and power interests, property owners, and recreational boaters.

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Water level information is supplied to the public via the District's web pages, telephonic and written responses to inquiries, presentations to various interest groups, and interviews with the news media.

The total costs for FY 2003 under the Surveillance of Northern Boundary Waters was \$3,082,238 and under the International Water Studies, \$182,155.

MULTIPLE-PURPOSE PROJECTS INCLUDING POWER

78. ST. MARYS RIVER, MI

Location. A Great Lakes connecting channel about 63 miles long, flows southeasterly between State of Michigan and Province of Ontario, Canada, from eastern end of Lake Superior into northern end of Lake Huron. (See NOAA Nautical Charts 14882, 14883, and 14884.) At Sault Ste. Marie, MI, about 14 miles downstream from Lake Superior, there are four parallel locks and a hydroelectric power plant.

Previous Project. For details see page 1955, Annual Report for 1915; and page 1529, Annual Report for 1938.

Existing Project. Channels permitting 25.5-foot draft navigation in St. Marys River and Lake Superior and Lake Huron approaches thereto; constructing and operating four locks and two canals; constructing an electric plant of 14,000 kilowatt capacity (45,000 kilowatt ultimate capacity) constructing anchorage areas in river above and below locks; and constructing various other works in conjunction with project. Subsequently, in 1932, the Unit 10 powerhouse was installed raising the capacity to 18,400 kilowatts (45,000 ultimate capacity). Original State Locks were operated and maintained under permanent indefinite appropriation from Jun. 9, 1881, to Nov. 2, 1886, after which they were destroyed by excavation for the Poe Lock in 1896. Weitzel Lock, destroyed in 1942 by excavation for the MacArthur Lock, was operated and maintained under the same appropriation from Sep. 1, 1881, to Jun. 30, 1935. Poe Lock was operated and maintained under the same appropriation from Aug. 3, 1896, Davis Lock from Oct. 21, 1914, and Sabin Lock from Sep. 18, 1919, to end of FY 1935. The 1,200-foot by 110-foot new Poe Lock was authorized in 1962 and put into operation in 1968. Details of existing project are set forth in Table 21-F.

Project depths are referred to low water datum corresponding to sloping surface of river as follows: Above locks: When water surface of Lake Superior is at elevation 601.1 feet and at upstream side of locks is 600.6 feet above mean water level at Rimouski, Quebec, IGLD 1985. Below locks: When water surface at downstream side of locks is at elevation 578.4 feet and Lake Huron is 577.5 feet above mean water level at Rimouski, Quebec, IGLD 1985. Estimated (1974) cost for new work is \$163,087,000. (See Table 21-B for authorizing legislation.)

The WRDA of 1986 authorized construction of a second lock 1,294 feet in length, 115 feet in width, and 32 feet in depth, adjacent to the existing lock. The replacement lock is to be located in the North Canal of the St. Marys Falls Canal at Sault Ste. Marie, MI, on the site of the existing Davis and Sabin Locks. Material removed during construction of the replacement lock will be placed on the Northwest Pier to serve as a windbreak for downbound vessels approaching the lock. Estimated cost (Oct. 90) is \$174,200,000 Federal and \$93,800,000 non-Federal.

Local Cooperation. Fully complied with for completed portion of project. Local cooperation items for the newly authorized project in the WRDA of 1986 (PL 99-662), are as follows:

(a) Provide without cost to the United States all lands, easements, and rights-of-way necessary for implementation and later maintenance of the proposed project, and for aids to navigation upon the request of the Chief of Engineers, including suitable areas determined by the Chief of Engineers to be required in the general public interest for initial and later disposal of dredged/demolition material and including necessary retaining dikes, bulkheads, and embankments therefor, or the costs of such retaining works;

(b) Hold and save the United States free from damages due to the implementation and maintenance of the project, not including damages due to the fault or negligence of the United States or its contractors;

(c) Accomplish without cost to the United States such alterations and relocations of pipelines, powerlines, cables, sewer, water supply, drainage, and other utilities, structures, and improvements made necessary by the project. (Any such costs of the items on Federal property at the locks, would be part of the total construction cost and not separable local sponsor cost.);

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(d) Contribute in cash 25 percent of the total cost of construction of general navigation facilities, exclusive of aids to navigation, a contribution presently estimated at \$67,000,000. The estimated cash contribution of \$67,000,000 to be paid in lump sum prior to initiation of construction, or in annual installments during the construction period at a rate proportionate to the proposed or scheduled expenditure of Federal funds as required by the Chief of Engineers, or under another arrangement satisfactory to the Secretary of the Army, the final apportionment of cost to be made after actual costs have been determined;

(e) Repay, with interest, over a period of up to 30 years following project completion, 10 percent of the total cost of construction of general navigation facilities, an amount presently estimated at \$26,800,000. The Secretary of the Army may count against all or part of the 10 percent repayment, the amount of the local contribution for lands, easements, rights-of-way, dredged/demolition material disposal sites and relocations. In no case are these costs to count against the cash payment during construction, and in no case would the amount waived exceed 10 percent of project cost; and

(f) Any construction needed to prevent/mitigate for erosion or shoaling attributed to the lock would be cost shared in the same proportion as the project.

Terminal Facilities. This improvement serves through commerce between Lake Superior and lower lakes and has not materially influenced terminal facilities at localities along its route. Three piers at Sault Ste. Marie receive coal and petroleum products. Limestone is shipped from a pier at Drummond Island. Vessel refueling stations are at Lime Island and village of DeTour; they receive coal and petroleum products. Present terminals satisfy current traffic requirements.

Operations During Fiscal Year. New Work: Construction of a replacement lock. The St. Marys River project includes four navigation locks: MacArthur, Poe, Davis and Sabin. Currently, the MacArthur and Poe service loaded commercial vessel traffic. The Davis Lock is rarely used and the Sabin Lock is in disrepair and has been closed for several years. The new lock will replace the Davis and Sabin Locks in the North Canal of the St. Marys Falls Canal. As a minimum, the new lock would have the same dimensions as the 1200-foot by 110-foot Poe Lock. FY03 funds in the amount of \$1,802,958 were expended to complete the Engineering Technical Appendix for the Limited Reevaluation Report (LRR) to better define the design features. Also completed as part of this effort, was a detailed cost estimate.

Operations, maintenance, and care of locks: Two canals and three locks were operated (the fourth lock, Sabin, was in caretaker status) as required. Necessary repairs and improvements were made thereto and to appurtenant structures and equipment. Canals were open to navigation 297 days during the period 1 October 2002 through 30 September 2003. A total of 7,887 vessels, aggregating 75,272,107 short tons of freight and 96,032 passengers passed through the MacArthur, Davis and Poe Locks. Total cost for operation, maintenance, and care of the locks during the FY was \$8,906,762. Total cost includes \$28,301 for preparation of plans and specifications to upgrade the MacArthur and Poe locks (automation) and \$13,193 to prepare plans and specifications for MacArthur Guard Gate rehabilitation.

Powerhouse and equipment: A total of 154,552,490 kilowatt-hours of power was generated this FY. Income from the sale of power, sent to the U.S. Treasury, amounted to \$1,244,687. Total cost of operation and maintenance for two hydroelectric powerhouses during the FY was \$3,424,849. Total cost includes \$1,568,595 to continue the rehabilitation of governor, excitation, fire suppression system, and installation contracts, \$167,895 for engineering and design during construction, and \$163,485 for supervision and administration of the contracts. Supervision and administration to closeout FY01 replacement contract for the existing horizontal roof on the main power plant and the boathouse cost \$13,721. The contract awarded last FY for replacement of main power plant piping was completed this FY at a cost of \$224,737. Engineering and design during construction cost \$10,746. Supervision and administration cost \$23,235. Engineering and design to sandblast and paint the main power plant head and tailgates continued at a cost of \$28,531.

Other operation and care items: Buildings and grounds were operated and maintained, condition surveys, operations studies, environmental activities, real estate, and miscellaneous inspections and reports cost \$4,183,544, which includes a custodial, snow removal and grounds upkeep contract for \$536,943 and a service contract for security measures for \$770,200.

Channels and canals: St. Marys River channels and canal approach depths were surveyed by sweeping. Removal of shoals in the St. Marys River channels and canal approaches performed by hired labor using the U.S. Derrickbarges NICOLET and SCHWARTZ, and the U.S. Cranebarges HARVEY cost \$2,720,565. The FY01 Vidal shoals contract to deepen the federal channel in the Upper St. Marys River by one foot continued at a cost of \$535,300, supervision and

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administration of the contract cost \$156,332. Engineering and design for replacement of canal feeders was completed this FY at a cost of \$50,068. A contract was awarded this FY for this work in the amount of \$234,100. No work was performed this FY. However, the contractor was paid \$26,000 to cover his cost of bonds, supervision and administration cost \$6,669; and repair of the gate seals at the compensating works continued at a cost of \$15,202. An environmental and engineering assessment for deepening the Lower St. Marys River from the south approach to the locks down to the northerly entrance to the Rock Cut (Little Rapids Cut) was completed at a cost of \$13,905. A contract was awarded this FY for this work in the amount of \$1,907,084. At the end of the FY the contract was 58% complete at a cost of \$1,099,963, supervision and administration cost \$158,651. Fender replacement cost \$10,802.

Other miscellaneous items: Supervision and administration of the FY99 contract for repair of armor old disposal sites cost \$8,658. An adjustment of \$145,906 was made in contract cost for installation of fire alarms and enunciators was completed last FY. Engineering and design during construction cost \$5,811. Supervision and administration cost \$42,820. The contract awarded last for the repair of the West Center Piers continued at a cost of \$1,151,649. Engineering and design during construction cost \$24,725. Supervision and administration cost \$115,845. Preparation of plans and specifications was initiated for electrical load throughout the facility (lighting) at a cost of \$3,876. NOAA tower design cost \$31,582.

Recreational facilities: Information center, visitors center, comfort stations, park fountain, and observation and overlook platforms were operated and maintained at a cost of \$249,064 which includes a custodial contract for the Information Center. Visitors entering the Soo Locks Visitors Center numbered 404,879. Visitors to the observation platforms overlooking the locks numbered 346,097. Total visitors to the Soo Locks Park numbered 470,692. A grand total of 570,319 people (includes tour boat visitors of 96,083) visited the Soo Locks.

Total project costs in FY03 amounted to \$24,891,506.

Project in effect prior to modification of March 21, 1956, is complete and work authorized by 1956 modification to provide a safe draft of 25.5 feet for both upbound and downbound traffic is also complete. Public Works Acceleration Funds used for maintenance were \$118,000. Total cost of the existing project to end of FY was \$623,354,557, of which

\$164,743,248 was for new work and \$458,611,309 for maintenance (includes \$340,400 contributed funds).

GENERAL INVESTIGATIONS

79. SURVEYS

<u>Project and Location</u>	<u>FY Cost for Sep 30, 2003</u>
Reconnaissance and Feasibility Studies	
Belle Isle Shoreline Detroit, MI	\$18,438
Cass River, Vassar, MI.....	\$40,424
Detroit River Master Plan MI.....	\$95,488
Detroit River Sewals MI.....	\$26,601
Great Lakes Navigation System, MI	\$636,340
John Glenn Great Lakes Basin Program MI...	\$61,376
John Glenn Great Lakes Recreational Boat..	\$125,464
Lansing, MI	\$31,282

Watershed and Ecosystem Restoration

Reconnaissance and Feasibility Studies

Detroit River, Environmental Dredging, MI	\$2,890
Fox River, WI.....	\$51,652
Great Lakes Fishery & Ecosystem Restor....	\$137,684
Muskegon Lake, MI.....	\$1,217
Rouge River Environmental Dredging, MI	\$1,442
Rouge River Watershed, MI.....	\$96,688
White Lake, MI	\$4,011
St. Clair River & Lake St Clair, MI.....	\$57,016

Coordination Studies with Other Agencies

FERC Licensing Activities.....	\$3,249
Interagency Water Resources Development....	\$2,590
North American Water Fowl Mgmt Planning ..	\$2,145
National Estuary Studies	\$3,931
Special Investigations.....	\$21,205

Sec 22 Planning Assistance to States & Tribes:

Great Lakes Remedial Action Program.....	\$254,670
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Federal amount shown, studies cost shared equally with partner include:

Door County, WI GIS.....	\$118,920
Fabius Township GIS.....	\$10,870
Grand Traverse County, MI GIS.....	\$8,426
Ingham County GIS.....	\$80,266
Mequon Dam Evaluation, WI.....	\$8,127
Muskegon County, MI GIS	\$14,000
PAS Negotiation Funds, MI	\$9,970
St. Clair County, MI GIS.....	\$329
Sylvan Lake, IN.....	\$29,922

DETROIT, MI DISTRICT

Three Rivers, MI GIS\$720
Vassar, MI\$1,361

<u>Project and Location</u>	<u>FY Cost for Sep 30, 2003</u>
Fort Wayne, IN (410)	\$13,917

80. PRECONSTRUCTION ENGINEERING AND DESIGN

Great Lakes Connecting Channels and Harbors, Replacement Lock

An adjustment of -\$28,546 was made in costs on preconstruction engineering and design work activities.

The project, as authorized in the WRDA of 1986 and the WRDA of 1990, calls for constructing a second lock able to accommodate the largest vessels engaged in Great Lakes commerce. The authorized dimensions are 1,294 feet in length, 115 feet in width, and 32 feet in depth. The authorized cost (1985) is \$227,428,000. The new lock would replace two existing locks that are only 80 feet in width and 23 feet in depth. The project had not been funded earlier due to lack of a local sponsor. The WRDA of 1996 eased the cost-sharing requirements for a non-Federal sponsor. Given the delay in initiating preconstruction engineering and design, the initial work effort was to prepare a limited re-evaluation report to assure that the project remained economically justified.

81. COLLECTION AND STUDY OF BASIC DATA

<u>Project and Location</u>	<u>FY Cost for Sep 30, 2003</u>
Flood Plain Mgmt Services Program	
FPMS Unit.....	\$66,510
Technical Services.....	\$41,951
National Flood Proofing Committee	\$20,709
HEC-RAS Workshop in Wisconsin	\$311
Advanced HEC-RAS Workshop, Michigan	\$174
Advanced HEC-RAS in Indiana.....	\$74
Special Study Flood Plain, Rabbit River, MI	\$409
Special Study NE Minnesota, Tiescher Creek.....	\$804

No Federal Emergency Management Agency's Community Assistance Program Study or Flood Insurance Studies in FY03.

General Hydrologic Studies	\$867
International Water Studies	\$26,831

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TABLE 21-A

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 00	FY 01	FY02	FY03	Total to Sep. 30, 2003
1.	Alpena Harbor, MI	New Work					
		Approp.	0	0	0	0	337,394 ¹
		Cost	0	0	0	0	337,394 ¹
		Maintenance					
		Approp.	761,019	81,463	2,433	3,090	2,047,717
		Cost	761,054	81,404	2,483	3,149	2,047,717
2.	Arcadia Harbor, MI	New Work					
		Approp.	0	0	0	0	0
		Cost	0	0	0	0	0
		Maintenance					
		Approp.	80,802	95,817	122,163	128,600	5,645,711
		Cost	80,832	95,799	120,747	130,029	5,645,667
3.	Ashland Harbor, WI	New Work					
		Approp.	0	0	0	0	1,695,645
		Cost	0	0	0	0	1,695,645
		Maintenance					
		Approp.	135,371	7,629	3,258	185,206	4,583,961
		Cost	135,677	7,601	3,258	184,708	4,583,436
4.	Bay Port Harbor, MI	New Work					
		Approp.	0	0	0	0	93,597
		Cost	0	0	0	0	93,597
		Maintenance					
		Approp.	9,173	102,000	9,070	111,084	686,296 ²
		Cost	9,173	101,678	9,335	111,140	686,296 ²
	Contributed Funds	Maintenance					
		Contrib.	0	0	0	0	137,399
		Cost	0	0	0	0	137,399
5.	Big Suamico River, WI	New Work					
		Approp.	0	0	0	0	20,243
		Cost	0	0	0	0	20,243
		Maintenance					
		Approp.	127,246	124,100	423,995	22,578	1,921,925
		Cost	127,183	124,078	423,387	23,270	1,921,925
6.	Black River Harbor, MI (P.H.)	New Work					
		Approp.	0	0	0	0	480,244 ³
		Cost	0	0	0	0	480,244 ³
	Contributed Funds	New Work					
		Contrib.	0	0	0	0	349,921
		Cost	0	0	0	0	349,921
		Maintenance					
		Approp.	47,797	33,577	54,377	491,400	2,117,642 ⁴
		Cost	47,479	33,895	54,303	328,714	1,954,882 ⁴

DETROIT, MI DISTRICT

TABLE 21-A (Continued)

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 00	FY 01	FY02	FY03	Total to Sep. 30, 2003
7.	Black River Harbor, MI (U.P.)	New Work Approp. Cost	0 0	0 0	0 0	0 0	383,350 ⁵ 383,350 ⁵
		Maintenance Approp. Cost	5,632 5,562	112,500 112,473	5,293 4,613	28,367 29,145	1,161,200 1,161,200
8.	Bolles Harbor, MI	New Work Approp. Cost	0 0	0 0	0 0	0 0	217,916 217,916
		New Work Contrib. Cost	0 0	0 0	0 0	0 0	255,000 255,000
		Maintenance Approp. Cost	4,097 4,097	262,899 262,897	25,800 23,578	14,570 16,694	3,951,209 3,951,109
9.	Charlevoix Harbor, MI	New Work Approp. Cost	0 0	0 0	0 0	0 0	180,623 180,623
		Maintenance Approp. Cost	87,730 87,649	170,746 170,767	61,800 61,807	63,500 63,509	10,887,214 10,887,152
		Major (or Minor) Rehabilitation Approp. Cost	0 0	0 0	0 0	0 0	1,129,396 1,129,396
10.	Clinton River, MI	New Work Approp. Cost	0 0	0 0	0 0	0 0	260,046 ⁶ 260,046 ⁶
	Contributed Funds	New Work Contrib. Cost	0 0	0 0	0 0	0 0	289,752 ⁷ 289,752 ⁷
		Maintenance Approp. Cost	106,496 106,591	716,200 715,486	21,800 22,471	9,265 9,309	8,305,436 8,305,436
11.	Detroit River, MI	New Work Approp. Cost	0 0	0 0	0 0	0 0	76,877,357 ⁸ 76,877,357 ⁸
		Maintenance Approp. Cost	3,408,297 3,381,961	3,017,964 3,020,417	4,283,743 4,305,016	3,833,000 3,822,439	180,913,589 ⁹ 180,899,958 ⁹
	Contributed Funds	Maintenance Contrib. Cost	0 0	0 0	0 0	0 0	361,235 361,235

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 21-A (Continued)

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 00	FY 01	FY02	FY03	Total to Sep. 30, 2003
12.	Duluth-Superior Harbor, MN & WI	New Work					
		Approp.	0	0	0	0	16,894,658 ¹⁰
		Cost	0	0	0	0	16,894,658 ¹⁰
		New Work					
		Contrib.	0	0	0	0	331,685
		Cost	0	0	0	0	331,685
		Maintenance					
		Approp.	2,333,867	2,321,781	3,137,600	2,308,630	87,497,350 ¹¹
		Cost	2,330,540	2,312,629	3,142,964	2,311,667	87,487,364 ¹¹
		Major (or Minor) Rehabilitation					
13.	Fox River, WI	Approp.	0	0	0	0	11,555,410
		Cost	0	0	0	0	11,555,410
		New Work					
		Approp.	0	0	0	0	3,753,334 ¹²
		Cost	0	0	0	0	3,753,334 ¹²
		Maintenance					
		Approp.	2,254,855	4,394,807	4,146,100	7,955,412	80,774,401 ^{13,14}
		Cost	2,196,546	4,433,137	4,111,716	4,192,543	76,934,453 ^{13,14}
		New Work					
		Approp.	0	0	0	0	1,923,450
14.	Frankfort Harbor, MI	Cost	0	0	0	0	1,923,450
		New Work					
		Contrib.	0	0	0	0	31,709
		Cost	0	0	0	0	31,709
		Maintenance					
		Approp.	166,738	133,120	175,700	179,000	12,035,742 ¹⁵
		Cost	166,649	117,513	184,454	185,299	12,035,038 ¹⁵
		Major (or Minor) Rehabilitation					
		Approp.	0	0	0	0	274,776
		Cost	0	0	0	0	274,776
15.	Grand Haven Harbor, MI	New Work					
		Approp.	0	0	0	0	1,283,469 ¹⁶
		Cost	0	0	0	0	1,283,469 ¹⁶
		Section 111					
		New Work					
		Approp.	0	0	0	0	175,000
		Cost	0	0	0	0	175,000
		Contributed Funds					
		Maintenance					
		Approp.	441,336	457,482	924,500	577,400	35,667,928 ¹⁷
		Cost	438,671	460,037	925,143	577,487	35,667,877 ¹⁷

DETROIT, MI DISTRICT

TABLE 21-A (Continued)

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 00	FY 01	FY02	FY03	Total to Sep. 30, 2003
15.	Grand Haven Harbor, MI (Continued)	Maintenance Contrib. Cost	0 0	0 0	0 0	0 0	15,585 15,585
	Section 111	Maintenance Approp. Cost	85,665 85,673	84,800 84,734	81,900 81,825	82,921 81,220	3,022,046 3,020,205
		Major (or Minor) Rehabilitation Approp. Cost	0 0	0 0	0 0	0 0	813,613 813,613
16.	Grand Marais Harbor, MI	New Work Approp. Cost	0 0	0 0	0 0	0 0	1,055,871 1,055,871
		Maintenance Approp. Cost	2,473 2,473	1,528 1,528	124,867 124,837	257,544 162,046	3,026,971 2,931,442
17.	Grand Traverse Bay Harbor, MI	New Work Approp. Cost	0 0	0 0	0 0	0 0	266,037 266,037
	Section 111	New Work Approp. Cost	0 0	0 0	0 0	0 0	63,528 63,528
		Maintenance Approp. Cost	232,052 232,115	3,070 3,070	54,560 54,538	216,055 215,842	2,682,347 2,682,112
18.	Green Bay Harbor, WI	New Work Approp. Cost	0 0	0 0	0 0	0 0	9,946,395 ^{18,19} 9,946,395 ^{18,19}
		Maintenance Approp. Cost	1,344,900 1,361,584	1,607,573 1,611,212	3,220,000 3,218,858	2,745,200 2,702,373	59,077,775 ²⁰ 59,033,561 ²⁰
19.	Holland Harbor, MI	New Work Approp. Cost	0 0	0 0	0 0	0 0	736,122 ²¹ 736,122 ²¹
	Contributed Funds	New Work Contrib. Cost	0 0	0 0	0 0	0 0	35,705 35,705
	Section 111	New Work Approp. Cost	0 0	0 0	0 0	0 0	621,000 621,000

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 21-A (Continued)

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 00	FY 01	FY02	FY03	Total to Sep. 30, 2003
19.	Holland Harbor, MI (Continued)	Maintenance Approp. Cost	781,506 780,367	877,154 876,579	499,100 500,644	373,000 372,686	29,503,164 ²² 29,502,506 ²²
	Section 111	Maintenance Approp. Cost	67,835 67,856	70,300 70,194	85,200 85,176	85,592 82,389	2,576,742 2,573,409
		Major (or Minor) Rehabilitation Approp. Cost	0 0	0 0	0 0	0 0	502,452 502,452
20.	Inland Route, MI	New Work Approp. Cost	0 0	0 0	0 0	0 0	770,222 770,222
	Contributed Funds	New Work Contrib. Cost	0 0	0 0	0 0	0 0	148,000 148,000
		Maintenance Approp. Cost	220,566 220,747	22,629 22,599	34,700 34,683	27,700 27,606	4,053,110 ²³ 4,052,970 ²³
21.	Kenosha Harbor, WI	New Work Approp. Cost	0 0	0 0	0 0	0 0	988,969 ^{24,25} 988,969 ^{24,25}
		Maintenance Approp. Cost	196,809 196,852	78,811 78,776	299,000 298,988	3,366 3,366	12,268,222 ²⁶ 12,268,175 ²⁶
		Major (or Minor) Rehabilitation Approp. Cost	0 0	0 0	0 0	0 0	1,270,275 1,270,275
22.	Kewaunee Harbor, WI	New Work Approp. Cost	0 0	0 0	0 0	0 0	758,333 ²⁷ 758,333 ²⁷
		Maintenance Approp. Cost	717,935 718,005	93,446 93,364	84,600 84,638	79,002 79,028	11,711,214 ²⁸ 11,711,196 ²⁸
		Major (or Minor) Rehabilitation Approp. Cost	0 0	0 0	0 0	0 0	617,300 617,300
23	Keweenaw Waterway, MI	New Work Approp. Cost	0 0	0 0	0 0	0 0	5,974,141 5,974,141

DETROIT, MI DISTRICT

TABLE 21-A (Continued)

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 00	FY 01	FY02	FY03	Total to Sep. 30, 2003
23.	Keweenaw Waterway, MI (Continued)	Maintenance Approp. Cost	220,235 220,228	283,350 292,127	601,000 600,647	74,346 73,683	30,244,159 ²⁹ 30,243,135 ²⁹
24.	Knife River Harbor, MN	New Work Approp. Cost	0 0	0 0	0 0	0 0	528,945 528,945
		Maintenance Approp. Cost	2,368 2,368	2,404 2,404	2,961 2,961	26,002 26,002	346,928 346,928
25	Lac LaBelle Harbor, MI	New Work Approp. Cost	0 0	0 0	0 0	0 0	269,270 ³⁰ 269,270 ³⁰
		Maintenance Approp. Cost	41,444 41,444	14,199 14,166	50,941 50,839	2,516 2,621	856,439 856,409
26	Lake St. Clair, MI, Channels	New Work Approp. Cost	0 0	0 0	0 0	0 0	7,675,357 ³¹ 7,675,357 ³¹
		Maintenance Approp. Cost	88,344 82,476	54,015 60,116	106,500 96,444	94,700 107,660	14,352,831 ³² 14,352,660 ³²
27.	Leland Harbor, MI	New Work Approp. Cost	0 0	0 0	0 0	0 0	672,950 672,950
	Contributed Funds	New Work Contrib. Cost	0 0	0 0	0 0	0 0	354,139 354,139
		Maintenance Approp. Cost	139,151 139,155	151,539 151,510	186,063 186,008	184,800 184,843	4,237,276 4,237,234
		Major (or Minor) Rehabilitation Approp. Cost	0 0	0 0	0 0	0 0	70,678 70,678
28	Lexington Harbor, MI	New Work Approp. Cost	0 0	0 0	0 0	0 0	1,646,304 1,646,304
	Contributed Funds	New Work Contrib. Cost	0 0	0 0	0 0	0 0	1,088,888 1,088,888
	Section 111	New Work Approp. Cost	0 0	0 0	0 0	0 0	372,000 372,000

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TABLE 21-A (Continued)

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 00	FY 01	FY02	FY03	Total to Sep. 30, 2003
28.	Lexington Harbor, MI (Continued)	Maintenance Approp. Cost	227,508 228,402	973 1,915	3,304 3,304	142,500 136,539	1,212,445 1,206,438
	Section 111	Maintenance Approp. Cost	54,462 54,473	7,000 6,995	1,300 1,223	95,654 95,735	2,199,402 2,199,402
29.	Little Lake Harbor, MI	New Work Approp. Cost	0 0	0 0	0 0	0 0	542,808 542,808
	Contributed Funds	New Work Contrib. Cost	0 0	0 0	0 0	0 0	57,670 57,670
		Maintenance Approp. Cost	71,241 71,893	434,800 434,741	17,600 17,636	318,500 317,725	5,460,913 5,460,115
30	Ludington Harbor, MI	New Work Approp. Cost	0 0	0 0	0 0	0 0	7,912,202 ³³ 7,912,202 ³³
	Section 111	New Work Approp. Cost	0 0	0 0	0 0	0 0	620,000 620,000
		Maintenance Approp. Cost	1,138,569 1,125,852	222,374 234,536	553,600 554,209	146,900 146,841	21,755,290 ³⁴ 21,755,195 ³⁴
	Section 111	Maintenance Approp. Cost	0 5,090	50,500 50,465	0 92	0 0	832,740 832,740
		Major (or Minor) Rehabilitation Approp. Cost	0 0	0 0	0 0	0 0	357,913 357,913
31.	Manistee Harbor, MI	New Work Approp. Cost	0 0	0 0	0 0	0 0	2,696,522 ³⁵ 2,696,522 ³⁵
		Maintenance Approp. Cost	22,085 22,147	592,115 592,086	61,300 61,286	82,000 82,002	12,764,514 ³⁶ 12,764,473 ³⁶
		Major (or Minor) Rehabilitation Approp. Cost	0 0	0 0	0 0	0 0	1,374,164 1,374,164

DETROIT, MI DISTRICT

TABLE 21-A (Continued)

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 00	FY 01	FY02	FY03	Total to Sep. 30, 2003
32.	Manistique Harbor, MI	New Work Approp. Cost	0 0	0 0	0 0	0 0	1,299,355 ³⁷ 1,299,355 ³⁷
		Maintenance Approp. Cost	2,042,571 2,042,691	2,220,886 2,221,031	(3,800) (3,937)	3,033 3,199	6,993,247 6,993,247
		Major (or Minor) Rehabilitation Approp. Cost	0 0	0 0	0 0	0 0	316,333 316,333
33.	Manitowoc Harbor, WI	New Work Approp. Cost	0 0	0 0	0 0	0 0	2,048,914 ³⁸ 2,048,914 ³⁸
	Contributed Funds	New Work Contrib. Cost	0 0	0 0	0 0	0 0	1,911,130 1,911,130
		Maintenance Approp. Cost	249,439 249,467	182,413 179,126	570,300 573,541	105,400 105,431	13,134,974 ³⁹ 13,134,958 ³⁹
	Contributed Funds	Maintenance Contrib. Cost	(7,163) 18,875	9,206 0	3,700 0	0 0	79,648 66,735
34.	Marquette Harbor, MI	New Work Approp. Cost	0 0	0 0	0 0	0 0	1,282,893 ⁴⁰ 1,282,893 ⁴⁰
		Maintenance Approp. Cost	186,829 186,843	944 1,444	204,163 203,623	333,200 333,166	3,903,695 ⁴¹ 3,903,121 ⁴¹
		Major (or Minor) Rehabilitation Approp. Cost	0 0	0 0	0 0	0 0	465,757 465,757
35.	Menominee Harbor & River, MI & WI	New Work Approp. Cost	0 0	0 0	0 0	0 0	533,476 ⁴² 533,476 ⁴²
	Contributed Funds	New Work Contrib. Cost	0 0	0 0	0 0	0 0	36,762 36,762

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 21-A (Continued)

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 00	FY 01	FY02	FY03	Total to Sep. 30, 2003
35.	Menominee Harbor & River, MI & WI (Continued)	Maintenance Approp. Cost	180,181 180,017	78,880 79,051	99,500 99,523	179,700 179,735	4,236,960 ⁴³ 4,236,953 ⁴³
		Major (or Minor) Rehabilitation Approp. Cost	0 0	0 0	0 0	0 0	1,351,852 1,351,852
36.	Milwaukee Harbor, WI	New Work Approp. Cost	0 0	0 0	0 0	0 0	8,231,024 ⁴⁴ 8,231,024 ⁴⁴
		Maintenance Approp. Cost	1,212,969 1,242,020	396,239 395,059	458,000 458,724	548,661 549,290	55,174,406 ⁴⁵ 55,174,405 ⁴⁵
	Contributed Funds	Maintenance Contrib. Cost	0 0	0 0	0 0	0 0	322,471 322,471
		Major (or Minor) Rehabilitation Approp. Cost	0 0	0 0	0 0	0 0	12,715,560 12,715,560
37.	Monroe Harbor, MI	New Work Approp. Cost	0 0	0 0	0 0	0 0	687,340 687,340
	Contributed Funds	New Work Contrib. Cost	0 0	0 0	0 0	0 0	300,000 300,000
		Maintenance Approp. Cost	179,610 179,598	531,605 531,621	60,300 60,348	560,768 431,565	61,332,734 ⁴⁶ 61,203,508 ⁴⁶
	Contributed Funds	Maintenance Contrib. Cost	0 0	0 0	0 0	0 0	249,849 ⁴⁷ 249,849 ⁴⁷
38.	Muskegon Harbor, MI	New Work Approp. Cost	0 0	0 0	0 0	0 0	2,912,110 ⁴⁸ 2,912,110 ⁴⁸
	Section 111	New Work Approp. Cost	0 0	0 0	0 0	0 0	105,000 105,000
		Maintenance Approp. Cost	207,437 207,125	26,493 26,804	457,750 457,505	98,000 98,341	11,462,021 ⁴⁹ 11,462,021 ⁴⁹

DETROIT, MI DISTRICT

TABLE 21-A (Continued)

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 00	FY 01	FY02	FY03	Total to Sep. 30, 2003
38.	Muskegon Harbor, MI (Continued) Section 111	Maintenance Approp. Cost	0 75	0 0	0 0	0 0	3,265,600 3,265,600
		Major (or Minor) Rehabilitation Approp. Cost	0 0	0 0	0 0	0 0	13,824,300 13,824,300
39.	New Buffalo Harbor, MI	New Work Approp. Cost	0 0	0 0	0 0	0 0	1,285,716 1,285,716
	Contributed Funds	New Work Contrib. Cost	0 0	0 0	0 0	0 0	1,186,467 1,186,467
		Maintenance Approp. Cost	32,955 32,975	135,977 135,956	25,135 24,985	178,000 178,171	5,778,117 ⁵⁰ 5,778,117 ⁵⁰
40	Oconto Harbor, WI	New Work Approp. Cost	0 0	0 0	0 0	0 0	130,754 ⁵¹ 130,754 ⁵¹
		Maintenance Approp. Cost	94,330 94,023	81,400 83,703	33,800 33,800	2,405 2,409	2,475,831 ⁵² 2,475,831 ⁵²
41.	Ontonagon Harbor, MI	New Work Approp. Cost	0 0	0 0	0 0	0 0	953,903 ⁵³ 953,903 ⁵³
		Maintenance Approp. Cost	443,905 414,195	508,359 539,609	1,991,890 1,991,532	939,328 939,565	26,719,568 ⁵⁴ 26,719,333 ⁵⁴
42.	Pentwater Harbor, MI	New Work Approp. Cost	0 0	0 0	0 0	0 0	179,899 179,899
		Maintenance Approp. Cost	3,817,734 3,817,919	597,232 597,231	248,000 247,998	79,100 79,089	15,221,834 15,221,817
43.	Point Lookout, MI	New Work Approp. Cost	0 0	0 0	0 0	0 0	2,642,584 2,642,584
		Maintenance Approp. Cost	101,752 101,751	486,000 485,972	11,420 11,425	11,080 11,104	4,678,587 ⁵⁵ 4,678,587 ⁵⁵
	Contributed Funds	Maintenance Contrib. Cost	0 0	0 0	0 0	0 0	9,257 9,257

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 21-A (Continued)

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 00	FY 01	FY02	FY03	Total to Sep. 30, 2003
44.	Port Austin Harbor, MI	New Work Approp. Cost	0 0	0 0	0 0	0 0	3,191,234 3,191,234
	Contributed Funds	New Work Contrib. Cost	0 0	0 0	0 0	0 0	172,100 172,100
		Maintenance Approp. Cost	19,082 19,082	20,861 13,861	81,000 87,758	24,809 24,668	2,209,447 ⁵⁶ 2,209,064 ⁵⁶
45.	Port Sanilac Harbor, MI	New Work Approp. Cost	0 0	0 0	0 0	0 0	909,963 909,963
	Contributed Funds	New Work Contrib. Cost	0 0	0 0	0 0	0 0	487,108 487,108
	Section 111	New Work Approp. Cost	0 0	0 0	0 0	0 0	336,000 336,000
		Maintenance Approp. Cost	41,756 41,759	283,400 282,953	14,691 15,100	129,263 118,239	2,812,352 ⁵⁷ 2,801,290 ⁵⁷
	Contributed Funds	Maintenance Contrib. Cost	0 0	0 0	0 0	0 0	115,000 115,000
	Section 111	Maintenance Approp. Cost	0 79	10,000 9,895	1,300 1,372	67,304 67,337	1,270,054 1,270,054
46.	Port Washington Harbor, WI	New Work Approp. Cost	0 0	0 0	0 0	0 0	2,582,204 ⁵⁸ 2,582,204 ⁵⁸
	Contributed Funds	New Work Contrib. Cost	0 0	0 0	0 0	0 0	1,624,000 1,624,000
		Maintenance Approp. Cost	43,256 44,343	25,330 25,270	49,338 49,386	300,938 300,951	3,825,270 ⁵⁹ 3,825,270 ⁵⁹
47	Port Wing Harbor, WI	New Work Approp. Cost	0 0	0 0	0 0	0 0	63,393 63,393
		Maintenance Approp. Cost	2,693 2,769	48,639 48,605	258,701 256,131	71,942 74,547	1,821,886 1,821,886

DETROIT, MI DISTRICT

TABLE 21-A (Continued)

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 00	FY 01	FY02	FY03	Total to Sep. 30, 2003
48.	Portage Lake Harbor, MI	New Work					
		Approp.	0	0	0	0	256,129
		Cost	0	0	0	0	256,129
		Maintenance					
		Approp.	144,862	2,837,755	1,927,000	922,289	8,740,790
		Cost	144,918	2,837,030	1,926,529	923,621	8,740,717
49.	Presque Isle Harbor, MI	New Work					
		Approp.	0	0	0	0	1,190,492
		Cost	0	0	0	0	1,190,492
	Section 111	New Work					
		Approp.	0	0	0	0	61,700
		Cost	0	0	0	0	61,700
		Maintenance					
		Approp.	2,540	1,031	1,400	88,775	1,951,348 ⁶⁰
		Cost	2,540	1,031	1,400	88,775	1,951,348 ⁶⁰
		Major (or Minor) Rehabilitation					
		Approp.	0	0	0	0	76,500
		Cost	0	0	0	0	76,500
50.	Rouge River, MI	New Work					
		Approp.	0	0	0	0	675,251 ⁶¹
		Cost	0	0	0	0	675,251 ⁶¹
		Maintenance					
		Approp.	123,755	179,603	182,200	876,786	39,398,802 ⁶²
		Cost	123,760	178,867	182,785	874,609	39,396,475 ⁶²
51	Saginaw River, MI (Federal Funds)	New Work					
		Approp.	0	0	0	0	14,917,127 ⁶³
		Cost	0	0	0	0	14,917,127 ⁶³
	Contributed Funds	New Work					
		Contrib.	0	0	0	0	13,600
		Cost	0	0	0	0	13,600
		Maintenance					
		Approp.	1,022,466	1,950,876	1,391,700	2,292,525	86,412,569 ⁶⁴
		Cost	1,022,382	1,939,543	1,391,696	2,301,905	86,409,175 ⁶⁴
52.	Saint Clair River, MI	New Work					
		Approp.	0	0	0	0	19,213,246
		Cost	0	0	0	0	19,213,246
		Maintenance					
		Approp.	798,453	2,311,458	800,500	537,100	31,880,519 ⁶⁵
		Cost	797,223	2,294,377	810,553	543,136	31,876,977 ⁶⁵

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 21-A (Continued)

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 00	FY 01	FY02	FY03	Total to Sep. 30, 2003
53.	Saint Joseph Harbor, MI	New Work					
		Approp.	0	0	0	0	976,485 ⁶⁶
		Cost	0	0	0	0	976,485 ⁶⁶
	Section 111	New Work					
		Approp.	0	0	0	0	828,000
		Cost	0	0	0	0	828,000
		Maintenance					
		Approp.	489,518	995,832	496,200	503,000	23,414,964 ⁶⁷
		Cost	492,623	992,969	496,952	501,793	23,409,700 ⁶⁷
	Section 111	Maintenance					
		Approp.	124,563	130,900	120,000	73,922	8,715,836
		Cost	124,658	130,920	119,739	72,372	8,713,995
		Major (or Minor) Rehabilitation					
		Approp.	0	0	0	0	962,216
		Cost	0	0	0	0	962,216
54.	Saugatuck Harbor & Kalamazoo River, MI	New Work					
		Approp.	0	0	0	0	364,527 ⁶⁸
		Cost	0	0	0	0	364,527 ⁶⁸
		Maintenance					
		Approp.	1,725,815	482,600	177,300	24,750	10,206,812 ⁶⁹
		Cost	1,726,003	482,563	177,145	24,842	10,206,712 ⁶⁹
55.	Saxon Harbor, MI	New Work					
		Approp.	0	0	0	0	507,507 ⁷⁰
		Cost	0	0	0	0	507,507 ⁷⁰
	Section 111	New Work					
		Approp.	0	0	0	0	204,270
		Cost	0	0	0	0	204,270
		Maintenance					
		Approp.	265,987	(31,487)	7,651	1,405	1,215,428
		Cost	65,556	168,888	6,818	2,294	1,215,428
56.	Sebewaing River, MI	New Work					
		Approp.	0	0	0	0	35,573
		Cost	0	0	0	0	35,573
		Maintenance					
		Approp.	66,405	35,864	29,000	24,002	4,338,250 ⁷¹
		Cost	66,258	36,023	28,889	24,142	4,338,250 ⁷¹
57.	Sheboygan Harbor, WI	New Work					
		Approp.	0	0	0	0	1,136,088 ⁷²
		Cost	0	0	0	0	1,136,088 ⁷²

DETROIT, MI DISTRICT

TABLE 21-A (Continued)

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 00	FY 01	FY02	FY03	Total to Sep. 30, 2003
57.	Sheboygan Harbor, WI (Continued)	Maintenance Approp. Cost	123,101 123,154	105,076 104,980	415,400 415,132	341,100 341,451	10,236,847 ⁷³ 10,236,834 ⁷³
		Major (or Minor) Rehabilitation Approp. Cost	0 0	0 0	0 0	0 0	609,028 609,028
58.	South Haven Harbor, MI	New Work Approp. Cost	0 0	0 0	0 0	0 0	452,426 ⁷⁴ 452,426 ⁷⁴
	Section 111	New Work Approp. Cost	0 0	0 0	0 0	0 0	532,000 532,000
		Maintenance Approp. Cost	354,226 349,614	84,666 99,681	1,452,995 1,452,351	835,995 836,692	9,058,354 ⁷⁵ 9,058,347 ⁷⁵
	Section 111	Maintenance Approp. Cost	0 (87)	(100) 0	0 0	29,906 21,225	1,966,039 1,957,279
		Major (or Minor) Rehabilitation Approp. Cost	0 0	0 0	0 0	0 0	1,632,076 1,632,076
59.	Sturgeon Bay, WI, and Lake Michigan Ship Canal, WI	New Work Approp. Cost	0 0	0 0	0 0	0 0	1,059,722 ⁷⁶ 1,059,722 ⁷⁶
		Maintenance Approp. Cost	341,941 351,980	237,401 237,450	95,900 95,867	109,400 109,436	11,698,913 ⁷⁷ 11,698,865 ⁷⁷
		Major (or Minor) Rehabilitation Approp. Cost	0 0	0 0	0 0	0 0	884,899 884,899
60.	Two Harbors, MN	New Work Approp. Cost	0 0	0 0	0 0	0 0	4,170,710 ⁷⁸ 4,170,710 ⁷⁸
		Maintenance Approp. Cost	1,841 1,841	1,379 1,379	1,607 1,607	18,051 18,002	5,273,498 5,273,449

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 21-A (Continued)

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 00	FY 01	FY02	FY03	Total to Sep. 30, 2003
61.	Two Rivers Harbor, WI	New Work					
		Approp.	0	0	0	0	360,320 ⁷⁹
		Cost	0	0	0	0	360,320 ⁷⁹
		Maintenance					
		Approp.	274,338	444,145	135,657	2,671,001	12,519,712 ⁸⁰
		Cost	250,652	452,010	153,711	2,670,990	12,519,619 ⁸⁰
62.	White Lake Harbor, MI	Major (or Minor) Rehabilitation					
		Approp.	0	0	0	0	58,057
		Cost	0	0	0	0	58,057
		New Work					
	Section 111	Approp.	0	0	0	0	249,700
		Cost	0	0	0	0	249,700
		Maintenance					
		Approp.	78,894	176,276	20,158	10,804	11,130,025
	Section 111	Cost	78,937	176,190	19,971	11,080	11,130,025
		Maintenance					
		Approp.	0	59,600	0	29,484	1,259,199
		Cost	0	59,587	(231)	28,023	1,257,398
71.	Fort Wayne Metro Area, IN	New Work					
		Approp.	4,087,000	1,554,000	315,000	0	37,260,000
	Contributed Funds	Cost	4,196,925	1,606,848	307,677	7,773	37,255,102
		New Work					
72.	Saginaw River-1958 Act Flint, MI	Contrib.	1,524,000	222,221	75,000	0	8,022,221
		Cost	1,072,714	672,567	80,921	0	8,021,882
	Contributed Funds	New Work					
		Contrib.	0	0	0	0	173,000
		Cost	0	0	0	0	173,000
		Maintenance					
	Contributed Funds	Approp.	0	75,000	4,000	(170)	6,453,831
		Cost	659,374	112,580	24,029	0	6,453,831
73.	Sebewaing River, MI	New Work					
		Approp.	0	0	0	0	365,642
		Cost	0	0	0	0	365,642
		Maintenance					
		Approp.	4,501	8,678	6,500	7,900	478,535
		Cost	4,507	8,591	6,527	7,950	478,525

DETROIT, MI DISTRICT

TABLE 21-A (Continued)

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 00	FY 01	FY02	FY03	Total to Sep. 30, 2003
77.	Surveillance of Northern Boundary Waters	New Work Approp. Cost	0 0	0 0	0 0	0 0	0 0
		Maintenance Approp. Cost	3,081,614 3,102,836	3,093,366 3,116,939	3,227,400 3,185,141	3,252,703 3,264,393	80,660,832 ⁸¹ 80,599,677 ⁸¹
78.	St. Marys River, MI	New Work Approp. Cost	0 0	0 0	2,321,000 2,283,219	1,850,000 1,802,958	164,828,071 ⁸² 164,743,248 ⁸²
		Maintenance Approp. Cost	20,811,820 20,857,071	22,268,620 22,080,895	26,252,210 21,790,725	22,878,841 23,088,548	462,751,403 ^{83,84} 458,270,909 ^{83,84}
	Contributed Funds	Maintenance Contrib. Cost	0 320	0 0	0 0	0 0	340,400 340,400

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 21-A (Continued)

COST AND FINANCIAL STATEMENT

¹Includes \$18,889 for previous projects.

²Includes \$792 for diked disposal.

³Includes \$85,849 for previous projects.

⁴Includes \$12,008 for previous projects.

⁵Excludes \$30,000 for contributed funds.

⁶Includes \$25,500 for previous projects.

⁷Includes \$3,796,180 for previous projects.

⁸Includes \$2,097,254 for previous projects.

⁹Includes \$42,470,585 for diked disposal.

¹⁰Includes \$1,547,195 for previous projects.

¹¹Includes \$1,556,249 for diked disposal.

¹²Includes \$3,239,910 for previous projects.

¹³Includes \$89,309 for previous projects.

¹⁴Includes \$42,084 expended for M&O of Dams.
(Excludes \$10 expended in FY99).

¹⁵Includes \$1,204,500 for diked disposal.

¹⁶Includes \$311,329 for previous projects.

¹⁷Includes \$13,437 for previous project and
\$780,400 for diked disposal.

¹⁸Includes \$506,437 for previous projects.

¹⁹Excludes \$100,000 contributed funds.

²⁰Includes \$8,918 for previous projects and
\$7,642,642 for diked disposal.

²¹Includes \$176,620 for previous projects.

²²Includes \$127,598 for previous projects and
\$1,663,300 for diked disposal.

²³Includes \$404,300 for diked disposal.

²⁴Includes \$453,839 for previous projects.

²⁵Excludes \$3,000 contributed funds.

²⁶Includes \$21,818 for previous projects and
\$4,378,600 for diked disposal.

²⁷Includes \$149,312 for previous projects.

²⁸Includes \$88,364 for previous projects and
\$2,961,461 for diked disposal.

²⁹Includes \$402,242 for previous projects and
\$1,523,500 for diked disposal.

³⁰Excludes \$38,190 contributed funds.

³¹Includes \$656,000 for previous projects.

³²Includes \$235,346 for previous projects and
\$5,119,800 for diked disposal.

³³Includes \$491,416 for previous projects.

³⁴Excludes \$136,286 contributed funds.

³⁵Includes \$354,999 for previous projects.

³⁶Includes \$150,910 for previous projects.

³⁷Includes \$3,955 for previous projects.

³⁸Includes \$400,126 for previous projects.

³⁹Includes \$54,288 for previous projects and
\$3,081,756 for diked disposal.

⁴⁰Includes \$312,423 for previous projects.

⁴¹Includes \$36,194 for previous projects.

⁴²Includes \$312,423 for previous projects.

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⁴³Includes \$36,194 for previous projects and
\$593,660 for diked disposal.

⁴⁴Includes \$1,293,220 for previous projects.

⁴⁵Includes \$459,305 for previous projects and
\$6,380,925 for diked disposal.

⁴⁶Includes \$38,606,400 for diked disposal.

⁴⁷Includes \$83,182 contributed funds - diked disposal.

⁴⁸Includes \$613,408 for previous projects.

⁴⁹Includes \$446,183 for previous projects.

⁵⁰Includes \$181,500 for diked disposal.

⁵¹Includes \$84,569 for previous projects.

⁵²Includes \$8,181 for previous projects.

⁵³Includes \$284,802 for previous projects.

⁵⁴Includes \$113,326 for previous projects and
\$21,000 for diked disposal.

⁵⁵Includes \$121,600 for diked disposal.

⁵⁶Includes \$159,000 for diked disposal.

⁵⁷Includes \$9,158 for diked disposal.

⁵⁸Includes \$188,495 for previous projects.

⁵⁹Includes \$15,123 for previous projects and
\$10,621 for diked disposal.

⁶⁰Includes \$16,500 for diked disposal.

⁶¹Includes \$50,084 for previous projects.

⁶²Includes \$56,608 for previous projects and
\$14,907,318 for diked disposal.

⁶³Includes \$962,556 for previous projects.

⁶⁴Includes \$20,951,888 for diked disposal (\$1,671,660
public works fund and \$49,419 emergency relief funds)

⁶⁵Includes \$420,000 expended for M&O of Dams.

⁶⁶Includes \$503,113 for previous projects.

⁶⁷Includes \$638,076 for diked disposal.

⁶⁸Includes \$90,232 for previous projects.

⁶⁹Includes \$117,554 for previous projects.

⁷⁰Excludes \$50,193 contributed funds.

⁷¹Includes \$15,000 for previous projects.

⁷²Includes \$487,817 for previous projects.

⁷³Includes \$87,131 for previous projects and
\$907,792 for diked disposal.

⁷⁴Includes \$187,233 for previous projects.

⁷⁵Includes \$131,299 for previous projects and
\$42,381 for diked disposal.

⁷⁶Includes \$323,419 for previous projects.

⁷⁷Includes \$219,730 for previous projects and
\$311,119 for diked disposal.

⁷⁸Includes \$48,404 National Recovery Act for New Work
Funds.

⁷⁹Includes \$212,857 for previous projects.

⁸⁰Includes \$33,113 for previous projects and
\$1,187,472 for diked disposal.

⁸¹Includes \$3,973,897 for previous projects.

⁸²Includes \$2,904,807 for previous projects.

⁸³Includes \$13,100 for diked disposal.

⁸⁴Includes \$799,947 expended for M&O of Dams.

DETROIT, MI DETROIT

TABLE 21-B AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
1.	Sep. 19, 1890 Mar. 2, 1919 Sep. 22, 1922 Aug. 30, 1935 Oct. 27, 1965 Nov. 17, 1986	ALPENA HARBOR, MI Channel depth of 16 ½ feet. Rubblemound breakwater for protecting channel on south side and widening entrance channel. 21 and 18½ foot channel depths and turning basin. Present project dimensions. New turning basin. Removal of old breakwater and construction of new breakwater. Deauthorization of the feature authorized by the 1965 River and Harbor Act.	Annual Report, 1889, p. 2288. H. Doc. 830, 65th Cong., 2d Sess., and Rivers & Harbors Comm. Doc. 1, 67th Cong., 1st Sess. Rivers and Harbors Comm. Doc. 42, 72d Cong., 1st Sess. H. Doc. 151, 88th Cong., 1st Sess. ¹ H. R. 6 (formerly S. 1567), 99 th Cong., 2d Sess. (WRDA of 1986).
2.	Mar. 3, 1905	ARCADIA HARBOR, MI Maintenance of existing 12-foot channel.	H. Doc. 194, 58th Cong., 2d Sess.
3.	Aug. 5, 1886 Aug. 11, 1888 Mar. 3, 1899 Jun. 6, 1990 Aug. 8, 1917 Jul. 3, 1930 Aug. 30, 1935 Mar. 2, 1945 Jul. 14, 1960	ASHLAND HARBOR, MI Breakwater 7,900 feet long and dredging to remove a shoal. Appropriation of \$60,000 for 'Continuing improvements on enlarged project' (On completion of Poe Lock in 1896, with available depth of 20 feet, dredging at Ashland Harbor was carried to a similar depth.) Detached breakwater extending 4,700 feet out from shore at a point 2,600 feet east of main breakwater (prolonged) and parallel thereto. Project modified by omitting detached breakwater and defining depth and extend of channel to be dredged. Widening part of present channel for entrance channel and for basin in eastern part of harbor. Deepening east basin to 25 feet and west channel, as far as 8th Ave. West, extended to 21 feet. Widening west channel to 750 feet at its westerly end Deepening portions of east basin and west channel to 27 and 21 feet, respectively.	H. Ex. Doc. 89, 48th Cong., 2d Sess. Annual Reports, 1886, p. 1674; and 1887, p. 1966. H. Ex. Doc. 89, 48th Cong., 2d Sess. Annual Reports, 1886, p. 1674; and 1887, p. 1966. H. Doc. 1698, 64th Cong., 2d Sess. S. Doc. 133, 71st Cong., 2d Sess Rivers and Harbors Committee Doc. 46, 82d Cong., 1st Sess. H. Doc. 337, 77th Cong., 1st Sess. H. Doc. 165, 86th Cong., 1st Sess. ¹
4.	May 20, 1965	BAY PORT HARBOR, MI Channel 6 feet deep and 50 feet wide.	Section 107, 1960 Rivers and Harbor Act.
5.	Aug. 26, 1937	BIG SUAMICO RIVER, WI Channel from Green Bay to 1,800 feet above the river mouth.	H. Doc. 498, 74 th Cong., 2d Sess. ¹
6.	Sep. 19, 1890 Jul. 13, 1892 Sep. 22, 1922 Jul. 3, 1930 Aug. 30, 1935 Apr. 23, 1970	BLACK RIVER, MI (PORT HURON) Channel from mouth of Grand Trunk R.R. Bridge. Channel from Grand Trunk R.R. Bridge to Washington Ave. Consolidation of projects for Black River at Port Huron and Mouth of Black River. Settling Basin. Deepening channel and settling basin to 20 feet, and widening to 100 feet 2 bends; 1 at the foot of 12 th St., the other below the Grand Trunk R.R. Bridge. Extension of existing channel.	Annual Report, 1889, p. 2291. No Printed Report. H. Doc. 436, 64 th Cong., 1st Sess. H. Doc. 162, 71 st Cong., 2d Sess. Rivers and Harbors Committee Doc. 54, 72d Cong., 2d Sess. Section 107, 1960 Rivers and Harbors Act.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 21-B (Continued)

AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
7.	Mar. 2, 1945	BLACK RIVER HARBOR, MI (UPPER PENINSULA) Two converging breakwaters, an entrance channel between breakwaters, an inner channel, and an irregular harbor basin. Project depths 12 feet in approach channel and 8 feet in the river channel and basin.	H. Doc. 446, 78 th Cong., 2d Sess. ¹
8.	Jul. 6, 1965	BOLLES HARBOR, MI Entrance channel in Lake Erie, Access channel in LaPlaisance Creek. Steel sheet pile revetment.	Section 107, 1960 Rivers and Harbors Act.
9.	Aug. 14, 1876 Aug. 2, 1882 Jun 13, 1902 Jun. 20, 1938 Nov. 17, 1988 Mar. 29, 1977	CHARLEVOIX HARBOR, MI Channel from Lake Michigan to Round Lake protected where needed by piers and revetments. Channel from Round Lake to Lake Charlevoix. Project depth increased to 15 feet. Project depth increased to 18 feet. Restore recreational uses or provide comparable recreational uses at the South Pier. Project depth increased to 24 and 23 feet, and construction of revetment upstream of Highway Bridge.	S. Ex. Doc. 16, 44th Cong., 1st Sess. and Annual Report 1876, p. 523. No Prior Survey of Estimates. No Prior Survey of Estimates. S. Doc. 163, 75th Cong., 3rd Sess. ¹ H. Doc. 1098, 100th Cong., 2d Sess. Sec. 25 of the WRDA of 1988. Section 107, 1960 Rivers and Harbors Act.
10.	Aug. 14, 1876 Jul. 19, 1963	CLINTON RIVER, MI Channel in River and Lake St. Clair, Pile Dike, Closing channels and making Cutoff, and revetments as needed. Widening entrance channel and constructing protected harbor basin.	S. Doc. 199, 46 th Cong., 2d Sess. Annual Report, 1880, p. 2062, and H. Doc. 210, 44 th Cong., 2d Sess., and Annual Report, 1886, p. 219. Section 107, 1960 Rivers and Harbors Act.
11.	Jun. 13, 1902 Mar. 3, 1905 Jun. 25, 1910 Mar. 4, 1913 Mar. 2, 1907 Jun. 25, 1910 Mar. 2, 1919 Jul. 3, 1930 Aug. 30, 1935 ³ Aug. 26, 1937 Mar. 2, 1945 Jul. 24, 1946 ²² May 17, 1950 ⁴	DETROIT RIVER, MI Amherstburg Channel and removal of Grosse Ile Shoal. Fighting Island Channel. Livingstone Channel. Channel Depths of 26 and 25 feet. Channel to Wyandotte 21 feet deep and 300 feet wide through Middle Ground opposite Head of Fighting Island. Trenton Channel and Turning Basin (West of Grosse Ile). American Channel North of Belle Isle between Windmill Point and Fairway Slip, Detroit. Deepen Westerly 300 feet of Amherstburg Channel and Ballards Reef Channel below Livingstone Channel to 27 feet to provide depths adequate for 24-foot draft navigation when governing Lakes are at Datum, with necessary widening at approaches and bends and construction of necessary compensating works, Detroit River. Extend Turning Basin in Trenton Channel 600 feet.	H. Doc. 712, 56th Cong., 1st. Sess. and 40, 58th Cong., 3rd Sess. H. Doc. 17, 62d Cong., 1st Sess. H. Doc. 266, 59th Cong., 1st Sess.; 676, 61st Cong., 2d Sess.; and 322, 65th Cong., 1st Sess. H. Doc. 253, 70th Cong., 1st. Sess. Rivers and Harbors Committee Doc. 1, 72d Cong., 1st Sess. ¹ H. Doc. 205, 75th Cong., 1st Sess. H. Doc. 734, 79th Cong., 2d Sess. H. Doc. 335, 80th Cong., 1st Sess. S. Doc. 30, 81st Cong., 1st Sess. ¹

DETROIT, MI DISTRICT

TABLE 21-B (Continued)

AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
	Mar. 21, 1956 ²²	Dredge through East Draw of lower Grosse Ile Bridge and extend 300-foot width of Channel North of lower Grosse Ile Bridge. Channel Depth of 28.5 feet throughout downbound and Two-Way Channels, except in upper (27.7-foot depth) and lower (29-foot depth), Livingstone Channel, and in upbound Channel; 27-foot depth in Ballards Reef Channel below junction with Livingstone Channel, 27.5-foot depth in westerly 300-foot width of Limekiln Crossing and Amherstburg Reaches, and 28.5-foot depth in westerly 300-foot width of Hackett Beach, with necessary compensation works. Also 28.5-foot depth in Lake Erie from Detroit River to Pelee Passage Shoal, inclusive.	S. Doc. 71, 84th Cong., 1st Sess. ¹
	Jul. 14, 1960	Trenton Channel: Deepen to 25 feet, where necessary, Wyandotte Reach from Detroit River to Upper Grosse Ile Bridge, about 5.5 miles, deepen to 28 feet and widen to 300 feet below Upper Grosse Ile Bridge to and including a Turning Basin 28 feet deep and 15 feet across in area outside project limits.	H. Doc. 319, 86th Cong., 2d Sess. ¹
	Aug. 13, 1968 ²²	Trenton Channel: Deepen to 28 feet and widen to 300 feet from Upper Turning Basin at Trenton to Gibraltar, about 20,500 feet from downstream: Construct a Turning Basin at Gibraltar at a depth of 28 feet, width of 830 feet, and length of 1,500 feet: Build compensating works to maintain water levels.	H. Doc. 338, 90th Cong., 2d Sess. ¹
12.		DULUTH-SUPERIOR HARBOR, MN AND WI	
	Jun. 3, 1896	Dredging.	H.Ex. Doc. 59, 53d Cong., 3rd Sess. and Annual Report, 1895, p. 2538.
	Jun. 13, 1902 Mar. 2, 1907	Rebuilding piers at Superior Entry. Enlarge plan for Superior Entry and additional dredging near draw span of Burlington Northern railway bridge.	H. Doc. 82, 59th Cong., 2d Sess.
	May 28, 1908 ⁵	Dredging additional area of basin inside Duluth entrance to 22-foot depth.	H. Doc. 221, 60th Cong., 1st Sess.
	Jul. 27, 1916 Mar. 2, 1919	Enlarging Superior Harbor Basin. Removal of shoal point at southerly end of East Gate Basin.	H. Doc. 651, 64th Cong., 1st Sess. H. Doc. 1018, 64th Cong., 1st Sess.
	Jan. 21, 1927 Jul. 30, 1930 ³	Howards Bay Channel, 20 feet deep.	H. Doc. 145, 69th Cong., 1st Sess., and Rivers and Harbors Committee Doc. 32, 71st Cong., 2d Sess.
	Aug. 30, 1930 ³ Jul. 16, 1952 ^{4,6}	Deepening and widening channels and basins. Deepen Superior Front Channel and a portion of East Gate Basin to 25 feet.	H. Doc. 482, 72d Cong., 2d Sess. H. Doc. 374, 82d Cong., 2d Sess.
	Jul. 14, 1960 ^{7,22}	Present project dimensions of channels and basin.	H. Doc. 150, 86th Cong., 1st Sess.; H. Doc. 196, 86th Cong., 1st Sess.
	Oct. 4, 1961	Abandons northerly portion of 21st Avenue West Channel.	
	Nov. 17, 1986	Deepen portions of the North and South Channels, the entire Upper Channel and Minnesota Channel to 27 feet; widen the Cross Channel turning basin to 1,500 feet; widen the bend at the Arrowhead Bascule Bridge to 600 feet, and construct an upland CDF.	H. Doc. 204, 99th Cong., 2d Sess. Sec. 202a of WRDA of 1986.
13.		FOX RIVER, WI	
	Aug. 5, 1886	Improvement of Fox River.	Annual Report, 1885, pp. 2041-2045 (plan of a board approach Dec. 10, 1884, as modified by Corps of

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 21-B (Continued)

AUTHORIZING LEGISLATION

Sec Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
	Sep. 19, 1890	Dredging Fond du Lac Harbor on Lake Winnebago.	Engineers, May 14, 1886). H. Ex. Doc. 24, 51st Cong., 1st Sess. Annual Report, 1890, p. 2390.
	Jun. 3, 1896	Improvement of Wolf River.	No prior survey or estimates.
	Jun. 3, 1896	Improvement of Stockbridge, of Calumet and Miller Bay, and of Brothertown Harbor, on Lake Winnebago.	No prior survey or estimates.
	Jun. 13, 1902		
	Mar. 2, 1907		No prior survey or estimates.
	Mar. 3, 1925 ^{8,22}	Increased depth in rock cuts on lower river, widen Neenah Channel, and a concrete retaining wall at Kaukauna.	H. Doc. 294, 68th Cong., 1st Sess. ¹
	Jun. 26, 1934 ⁹	Operation and care of locks and dams provided for with funds from War Department appropriations for rivers and harbors.	
	Jul. 3, 1958 ¹⁰	Sec. 108, Federal project structure, appurtenances, and real property of Upper Fox River, WI, be disposed of to State of Wisconsin.	S. Bill 3910, 85th Cong., 2d Sess.
	Oct. 31, 1992	Sec. 332 authorized transfer of navigation system to Wisconsin subject to agreement, Federal government to continue water regulation/dam operation.	Public Law 102-580 (WRDA of 1992).
14.		FRANKFORT HARBOR, MI	
	Jun. 23, 1866 ¹¹	A New Outlet 12 feet deep protected by Piers and Revetments.	H. Doc. 482, 5th Cong., 2d Sess.
	Mar. 3, 1925	Exterior Breakwaters, removal of portions of Piers, Project Dimensions of Outer Basin.	H. Doc. 208, 68th Cong., 1st Sess.
	Aug. 26, 1937	Dredge the area in Lake Betsie.	
	Oct. 27, 1965	Deepen approach and entrance channels. Extend Inner Basin and Dredge recreational anchorage area.	H. Doc. 511, 74th Cong., 2d Sess., S. Doc 16, 89th Cong., 1st Sess. ¹
15.		GRAND HAVEN HARBOR, MI	
	Jun. 23, 1866	Piers and Revetments.	S. Ex. Doc 42, 35th Cong., 1st. Sess.
	Jun. 14, 1880	Piers and Revetments.	S. Ex. Doc 42, 35th Cong., 1st. Sess.
	Sep. 19, 1890	Piers and Revetments.	S. Ex. Doc 42, 35th Cong., 1st. Sess.
	Jul. 13, 1892	Piers and Revetments.	S. Ex. Doc 42, 35th Cong., 1st. Sess.
	Jul. 3, 1930	Present Project dimensions of Harbor channel to Grand Trunk Car Ferry Slip and River Channel. Eliminating all of that portion of Grand River above Bass River, Consolidation of Projects for Harbor and River.	S. Doc. 88, 71st Cong., 2d Sess.
	Aug. 26, 1937	Channel to Spring Lake.	Rivers and Harbors Committee Doc. 1, 75th Cong., 3rd Sess. ¹
	Mar. 2, 1945	Present Project Dimensions of Harbor Channel from Car Ferry Slip to Grand Trunk Railway Bridge and Turning Basin.	H. Doc. 661, 76th Cong., 3rd Sess. ¹
	Nov. 17, 1986	Deepen the harbor entrance channel and harbor river channel to 29 and 27 feet, respectively; provide a new and larger turning basin, trapezoidal in shape, 1,200 feet long at the channel, 300 feet long at the shore, 800 feet at a right angle to the channel, and 18 feet deep.	H. Doc. 227, 98th Cong., 2d Sess. Sec. 202a of WRDA of 1986.
16.		GRAND MARAIS HARBOR, MI	
	Jun. 14, 1880	Existing project, except for pile dike.	Specified in Act, Annual Report 1881, p. 2050
	Jun. 14, 1880	For pile dike.	Annual Report, 1895, p. 351
	May 17, 1950	800-foot extension of West Pier.	H. Doc. 751, 80 th Cong., 2 nd Sess.

DETROIT, MI DISTRICT

TABLE 21-B (Continued)

AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
17.	Mar. 2, 1945	GRAND TRAVERSE BAY HARBOR, MI Two parallel piers, an entrance channel between piers and a harbor basin. Project depths are 12 feet between piers and 10 feet in basin. Projects area extended 200 feet upstream in 1966.	H. Doc. 446, 78 th Cong., 2 nd Sess.
18.	Jun. 23, 1866 Jul. 13, 1892	GREEN BAY HARBOR, WI Outer Channel and revetment at Grassy Island. ¹² Inner channel. ¹³	Annual Report, 1867, p. 70. Unpublished report approved Aug. 3, 1892.
	Jun. 26, 1910 Aug. 8, 1917 Mar. 3, 1925	Turning basin at DePere. Maintenance of turning basin at DePere. Increasing depth of inner channel and turning basin to 18 feet.	H. Doc. 222, 61st Cong., 2d Sess. H. Doc. 1017, 64th Cong., 1st Sess. H. Doc. 294, 68th Cong., 1st Sess.
	Aug. 30, 1935 ²	Deepen outer channel to 22 feet with widening and straightening inside of Tail Point Bend, widen channel in Fox River through city of Green Bay to 22 feet.	Rivers and Harbors Committee Doc. 40, 72d Cong., 2d Sess.
	Aug. 26, 1937	Turning basin above Chicago & North Western R.R. Bridge.	
	Mar. 2, 1945 Oct. 23, 1962	Turning basin at mouth of East River. Deepen and widen 9 miles of entrance channel to 26 by 500 feet; 3.6 miles of entrance channel to 24 by 300 feet; and 3.2 miles of existing Fox River to 24 feet deep.	Rivers and Harbors Committee Doc. 73, 74th Cong., 2d Sess. H. Doc. 95, 76th Cong., 1st Sess. H. Doc. 470, 87th Cong., 2d Sess. ¹
	Nov. 17, 1986	Deepen the Fox River channel at Green Bay, WI, to 27 feet.	H.R. 6 (formerly S. 1567), 99th Cong., 2d Sess. (WRDA of 1986, Sec. 601c).
19.	Aug. 30, 1852	HOLLAND HARBOR, MI Artificial channel between Lakes Macatawa and Michigan. ¹²	S. Ex. Doc. 42, 35th Cong., 1st Sess.
	Mar. 2, 1867 Mar. 3, 1899	Piers and Revetments. ¹² Extending Inner Piers.	Annual Report, 1866, p. 106. H. Doc. 272, 51st Cong., 2d Sess.; and Annual Report 1887, p. 2950.
	Mar. 3, 1905 Jul. 3, 1930 Aug. 30, 1935	Converging Breakwater. Channel to Holland and Turning Basin at Holland. Present Project Dimensions of Channels at Turning Basin.	Annual Report, 1905, p. 2176; H. Doc. 588, 69th Cong., 2d Sess. Rivers and Harbors Committee Doc. 48, 74th Cong., 1st Sess.
	Sep. 3, 1954 ²²	Widen Bend in Revetted Entrance Channel into Lake Macatawa, Dredge Channel in Black River, and Widen and Extend Turning Basin.	H. Doc. 282, 83rd Cong., 2d Sess.
20.	Sep. 3, 1954 Sep. 2, 1964	THE INLAND ROUTE, MI Channel 30 feet wide and 5 feet deep through Lakes and Rivers with suitable jetties. Lock and Dam.	H. Doc. 142, 82d Cong., 1st Sess. ¹ Chief of Engineers.
21.	Mar. 3, 1899	KENOSHA HARBOR, WI Parallel piers and 600 feet of breakwater. ¹²	H. Doc. 328, 54th Cong., 2d Sess.; Annual Report, 1897, p. 2772; H. Doc. 164, 55th Cong., 3rd Sess.; Annual Report, 1899, p. 1817.
	Mar. 2, 1907	Extending Breakwater 200 feet.	H. Doc. 62, 59th Cong., 2d Sess. and Rivers and Harbors Committee Doc. 3, 5th Cong., 2d Sess.
	Aug. 30, 1935 ²	Present project dimensions of entrance channel and basin.	Rivers and Harbors Committee Doc. 19, 74th Cong., 1st Sess.
	May 17, 1950	Channel northwesterly from basin.	H. Doc. 750, 80th Cong., 2d Sess.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 21-B (Continued)

AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
	Oct. 23, 1962 ²²	Deepen lake approach channel to 27 feet and 800 feet wide; deepen approach channel to 26 feet, entrance channel and inner basin to 25 feet.	H. Doc. 496, 87th Cong., 2d Sess. ¹
22.	Mar. 3, 1881 Jun. 25, 1910 Aug. 30, 1935 ^{2,14}	KEWAUNEE HARBOR, WI Entrance piers. Turning basin. North breakwater, remove old north pier, widen and deepen entrance channel and turning basin to 20 feet and remove outer south shoal.	Annual Report, 1881, p. 2082. H. Doc. 324, 60th Cong., 1st Sess. Rivers and Harbors Committee Doc. 43, 72d Cong., 1st Sess. ¹ S. Doc. 19, 86th Cong., 1st Sess. ¹
	Jul. 14, 1960	Enlarge existing turning basin, extend existing project into north basin, and increase depth of north basin to 20 feet at a maximum width of 500 feet and eliminate removal of outer shoal.	
23.	Sep. 19, 1890	KEWEENAW WATERWAY, MI Acquisition of waterway; for a 16-foot channel of 70-foot bottom width, renew canal revetments, reconstruct and extend piers at upper entrance to 30-foot depth of water, and at proper time for increase of channel depth to 20 feet with bottom width of not less than 120 feet (increase in width and depth of channel approved May 15, 1898).	H. Ex. Doc. 105, 49th Cong., 2d Sess.; and Annual Report, 1887, p. 1977.
	Jun. 25, 1910	Anchorage basin just within lower entrance about one-half mile long, 800 feet wide; a mooring pier on its westerly side 2,000 feet in length, and for purchase of necessary land.	H. Doc. 325, 60th Cong., 1st Sess.
	Mar. 2, 1919 Aug. 30, 1935 ¹⁵	Princess Point Cutoff Channel. General deepening, widening and straightening of channels and basins to provide 25-foot depth with additional overdepth at entrances, extend lower entrance breakwater, and necessary alteration or replacement of structures due to deepening channels.	H. Doc. 835, 63rd Cong., 2d Sess. H. Doc. 55, 73rd Cong., 1st Sess. ¹
	Nov. 17, 1986	Deauthorization of the uncompleted portion of the project authorized by the 1935 Rivers and Harbors Act.	H.R. 6 (formerly S. 1567), 99th Cong., 2d Sess. (WRDA of 1986).
24.	Mar. 2, 1945	KNIFE RIVER HARBOR, MN Dredging.	H. Doc. 686, 77 th Cong., 2d Sess. and Annual Report for 1949. H. Doc. 463, 83 rd Cong., 2d Sess. ¹
	Sep. 3, 1954 Mar. 7, 1974	Breakwater and modified channels. Construction of measures to correct the design deficiencies which results in unsatisfactory entrance and mooring conditions.	
25.	Mar. 2, 1945	LAC LA BELLE HARBOR, MI Two parallel piers at the entrance, 584 and 682 feet; an entrance channel between the piers 50 feet wide and 12 feet deep, 820 feet long with a flared approach and inner canal 50 feet wide, 10 feet deep, and 730 feet long.	H. Doc. 446, 78 th Cong., 2d Sess. Annual Report, 1961, p. 1039.
26.	Aug. 5, 1886	LAKE ST. CLAIR, MI, CHANNELS Two Dikes. Deepening Canal and dredging Channel at Grosse Pointe.	Annual Report, 1885, p. 2150. H. Doc. 297, 51st Cong., 2d Sess.
	Jul. 13, 1892	Second Canal for downbound vessels.	H. Doc. 234, 56th Cong., 2d Sess.

DETROIT, MI DISTRICT

TABLE 21-B (Continued)

AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
	Jun. 13, 1902	21-foot depth in Grosse Pointe Channel for about 5.25 miles.	H. Doc. 188, 65th Cong., 1st Sess.
	Mar. 2, 1919	25-foot depth through Canals and Channel through Lake St. Clair.	H. Doc. 253, 70th Cong., 1st Sess.
	Jul. 3, 1930 Aug. 30, 1933 ³	Removal of Center Dike and widening Channel to 700 feet.	Rivers and Harbors Committee Doc. 3, 72d Cong., 1st Sess.
	Mar. 21, 1956	Deepening Channel to 27.5 feet and abandonment of Channel above mouth of Southeast bend cutoff Channel.	S. Doc. 71, 84th Cong., 1st Sess. ¹
27.		LELAND HARBOR, MI	
	Aug. 30, 1935	Entrance Channel protected by Piers.	Rivers and Harbors Committee Doc. 23, 74th Cong., 1st Sess.
	Oct. 23, 1962	Outer Breakwater, Anchorage Area, Approach Channel and removal of North Pier.	H. Doc. 413, 87th Cong., 2d Sess.
28.		LEXINGTON HARBOR, MI	
	Oct. 27, 1965	Approach Channel and Maneuver Area Protected by Breakwaters. ¹	H. Doc. 301, 88th Cong., 2d Sess. ¹
29.		LITTLE LAKE HARBOR, MI	
	Mar. 2, 1945	12-foot deep Channel from Lake Superior into Little Lake Breakwaters and Revetments.	H. Doc. 446, 78th Cong., 2d Sess. ¹
30.		LUDINGTON HARBOR, MI	
	Mar. 2, 1867	Entrance Piers.	Annual Report, 1867, p. 114. ¹⁶
	Mar. 3, 1899	Pier Extension, Reconstruction and repairs to existing structures and present project dimensions of Channel.	H. Doc. 273, 54th Cong., 2d Sess.; and Annual Report, 1897, p. 2951.
	Mar. 2, 1907	Breakwaters, Shore Connections, and Removal of outer ends of the two inner piers.	H. Doc. 62, 59th Cong., 1st Sess.; and Rivers and Harbors Committee
	Dec. 31, 1970	Deepen Channels and widen opening between breakwaters.	Doc. 3, 59th Cong., 2d Sess. ¹⁶ H. Doc. 342, 91st Cong., 2d Sess. ¹
31.		MANISTEE HARBOR, MI	
	Mar. 2, 1867	Entrance Piers.	Annual Report, 1867, p. 115.
	Sep. 19, 1890	Extending Channel 8,000 feet to connect with Manistee Lake, and further Pier extension.	Annual Report, 1891, P. 2678.
	Jul. 25, 1912	Depth of 20 feet in Outer Harbor 570 feet wide to Outer end of South Pier 18 feet deep in river, South Breakwater with shore connection, and extend North Pier if required.	H. Doc. 599, 62d Cong., 2d Sess.
	Jul. 3, 1920	23-foot depths in entrance channel and 21-foot depths in River Channel.	S. Doc. 131, 71st Cong., 2d Sess. H. Doc. 380, 77th Cong., 1st Sess.
	Mar. 2, 1945	Remove old South Revetment, Construct new South Pier and Revetment, and widen river entrance Channel.	
	Jul. 14, 1960	Present project dimensions of Channel through Outer Basin and River, and Federal participation in cost of replacing Maple Street Bridge.	H. Doc. 358, 86th Cong., 2d Sess.
32.		MANISTIQUE HARBOR, MI	
	Mar. 3, 1905	Breakwaters and Outer Harbor.	H. Doc. 429, 58th Cong., 2d Sess.
	Mar. 2, 1907	Present location of West Breakwater and Pier at River Mouth.	Annual Report, 1908, p. 648, and Unpublished Report of Mar. 13, 1908; Approved by Secretary of War, Apr. 3, 1908.
33		MANITOWOC HARBOR, WI	
	Mar. 2, 1907	Breakwaters.	H. Doc. 62, 59th Cong., 1st Sess., as modified by Rivers and Harbors

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 21-B (Continued)

AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
	Aug. 30, 1935 ¹⁷	Present project dimensions of channel through outer basin, removal of old north stub pier, and approach channel to a proposed city terminal south of shore end of south breakwater.	Comm. Doc. 3, 59th Cong., 2d Sess. Rivers and Harbors Committee Doc. 39, 73rd Cong., 2d Sess.
	Aug. 26, 1937 Oct. 23, 1962 ²⁹	Channel in river. Deepen Lake approach to 25 feet by 800 feet wide, deepen outer harbor to 25 feet, river channel to 23 feet to 8 th Street, and Upper River Channel to 22 feet to Soo Line R.R.	Rivers and Harbors Committee Doc. 80, 74th Cong., 2d Sess. H. Doc. 479, 87th Cong., 2d Sess.
	Dec. 31, 1968 (Sec. 107 of 1960 R & H) Jun. 26, 1979	Dredge River Channel to 12 feet from Soo Line R.R. 720 feet upstream. Construct 765-foot long stone Breakwater, and rubblemound bulkhead; construct 360-foot long entrance Breakwater; dredge 16,500 cubic yards for entrance channel.	Jun. 1967 Detailed Project Report Apr. 1982 Supplement. ¹ Sec. 107, 1960 Rivers and Harbors Act.
34.		MARQUETTE HARBOR, MI	
	Mar. 2, 1867	Breakwaters, 2,000 feet long.	H. Ex. Doc. 56, 39th Cong., 2d Sess., pts. 1 and 2; and Annual Report, 1866, pp. 8 and 77.
	Aug. 11, 1888	Extending the breakwater 1,000 feet.	Annual Report, 1889, pp. 272 and 2021.
	Jun. 25, 1910	Additional 1,500-foot extension to breakwater and removing a shoal in northerly part of harbor.	H. Doc. 573, 61st Cong., 2d Sess.
	Aug. 30, 1935	Deepening harbor to 25 feet.	Rivers and Harbors Committee Doc. 20, 72d Cong., 1st Sess.
	Jul. 11, 1960	Deepening harbor to 27 feet.	H. Doc. 154, 86th Cong., 1st Sess. ¹
35.		MENOMINEE HARBOR AND RIVER, MI AND WI	
	Mar. 3, 1871 Jun. 13, 1902	Entrance piers. Consolidation of project for harbor and river, and a channel 18 feet deep.	Annual Report, 1867, p. 132. H. Doc. 419, 56th Cong., 1st Sess.
	Mar. 4, 1913 Jul. 3, 1930 Aug. 30, 1935	Partial restoration of work above bridge which had been eliminated by Act of May 3, 1905. 20-foot depth in channel and 18-foot depth in turning basin. 21-foot depth in channel and turning basin and enlarge turning basin.	H. Doc. 171, 70th Cong., 1st Sess. Rivers and Harbors Committee
	Mar. 2, 1945 Jul. 14, 1960	Extend channel 12 feet deep to vicinity of Marinette Yacht Club. Deepen existing approach channel to 26 feet, entrance and river channels to 24 feet and enlarge turning basin.	Doc. 28, 73rd Cong., 2d Sess. H. Doc. 228, 76th Cong., 1st Sess.
	Jun. 27, 1967 (Sec. 107)	Deepen 1,100 feet of river channel generally north of Marinette Corp. facilities to 19 feet.	H. Doc. 113, 86th Cong., 1st Sess. Detailed Project Report, Dec. 1966. ¹
36.		MILWAUKEE HARBOR, WI	
	Aug. 30, 1852 Mar. 3, 1883 Mar. 2, 1907	North Pier. ¹² Inner 7,600 feet of breakwater. ¹² South pier. Extending north breakwater 1,000 feet.	S. Doc. 175, 25th Cong., 2d Sess. Annual Report, 1881, p. 2122. Annual Report, 1906, p. 1752 (No prior survey or estimate affecting breakwater extensions).
	Sep. 22, 1922	Extend north breakwater; a south breakwater; present project dimensions of inner entrance channel.	H. Doc. 804, 66th Cong., 2d Sess.

DETROIT, MI DISTRICT

TABLE 21-B (Continued)

AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
	Aug. 30, 1935 ²² Mar. 2, 1945 ¹⁸ Jul. 14, 1960	Dredging a portion of outer harbor to 21-foot depth. Dredging river channels to 21-foot depth. Deepen South Menominee and Burnham Canals to 21 feet.	H. Doc. 289, 72d Cong., 1st Sess. S. Doc. 29, 76th Cong., 1st Sess. H. Doc. 285, 86th Cong., 2d Sess.
	Oct. 23, 1962	Deepen an approach channel to 30 feet by 800 feet wide and 300 feet wide through breakwater; deepen entrance channel 28 feet through piers, outer harbor to 28 feet south of entrance channel, and a channel to 27 feet in Milwaukee River to Buffalo Street, and in Kinnickinnic River to Chicago & North Western R.R. bridges.	H. Doc. 134, 87th Cong., 1st Sess. ¹
37.	Feb. 24, 1835 ¹⁹ Jul. 3, 1930 Jul. 14, 1932 ²¹ Nov. 17, 1986	MONROE HARBOR, MI 9-foot channel, protecting Revetments and Piers. 21-foot channel, dikes and turning basin. ²⁰ Modified Conditions of Local Cooperation imposed by Act of Jul. 3, 1930. Deepen portion of existing navigation channel to 27 feet; deepen lake channel to 28 feet; widen the channel from 200 to 500 feet; dredge a new turning basin 24 feet deep, 1,600 feet wide at river's mouth; and construct a 190 acre CDF in Plum Creek Bay to enable creation of a 700 acre marsh behind the CDF.	Annual Report, 1872, p. 237. Rivers and Harbors Committee Doc. 22, 71st Cong., 1st Sess. Rivers and Harbors Committee Doc. 12, 72d Cong., 1st Sess.; 45, 75th Cong., 1st Sess. ¹ H. R. 6 (formerly S. 1567), 99th Cong., 2d Sess. (WRDA of 1986).
38.	Jun. 13, 1902 Mar. 3, 1925 Aug. 30, 1935 Oct. 23, 1962	MUSKEGON HARBOR, MI Piers and Revetments. Breakwaters. Repairing Revetments around Car Ferry Slip. Channel deepening and present project dimensions of channel. Piers and Revetments.	H. Doc. 104, 56th Cong., 2d Sess. H. Doc. 494, 67th Cong., 4th Sess. Rivers and Harbors Committee Doc. 64, 75th Cong., 1st Sess. ¹ H. Doc. 474, 87th Cong., 2d Sess. ¹
39.	Oct. 23, 1962	NEW BUFFALO HARBOR, MI Entrance channel 10 feet deep by 80 to 180 feet wide and 850 feet long to mouth of Galien River, new north and south breakwaters 1,305 and 740 feet, respectively, deepening inner channel to Galien River to 8 feet and 80 feet wide and 1,250 feet long.	H. Doc. 474, 87th Cong., 2d Sess.
40.	Aug. 2, 1882 Jun. 25, 1910	OCONTO HARBOR, WI Piers, except for inner 300 feet of south pier and 250 feet north pier built by city. ² Present project dimensions of channel and turning basin.	Annual Report, 1881, p. 2066. H. Doc. 538, 61 st Cong., 2d Sess., Plan C. ¹
41.	Jun. 25, 1910 Aug. 26, 1937 Oct. 23, 1962 ²⁹ Nov. 17, 1986 Jan. 3, 1996	ONTONAGON HARBOR, MI Channel 17 feet deep and 150 feet wide through bar and 15 feet deep and 100 feet wide between piers, and pier maintenance. Modified project widths and provide inner basin. Enlarging and deepening the existing harbor basin. Deauthorization of the turning basin feature of the project authorized by the 1962 Rivers and Harbors Act. Reauthorization of the turning basin feature which was deauthorized (Sec. 1002) in WRDA 86.	H. Doc. 602, 61st Cong., 2d Sess. S. Committee print, 74th Cong., 2d Sess. H. Doc. 287, 87th Cong., 2d Sess. H. R. 6 (formerly S. 1567), 99th Cong., 2d Sess. (WRDA of 1986). Sec. 363 (e) of WRDA 1996

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 21-B (Continued)

AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
42.	Mar. 2, 1867 Mar. 3, 1873 Jul. 5, 1881 Jul. 13, 1892 Mar. 25, 1907	PENTWATER HARBOR, MI Piers and revetments, dredging. Piers and revetments, dredging. Piers and revetments, dredging. Piers and revetments, dredging. Present project depth of channel.	H. Ex. Doc. 70, 39th Cong., 2d Sess. H. Ex. Doc. 70, 39th Cong., 2d Sess. H. Ex. Doc. 70, 39th Cong., 2d Sess. H. Ex. Doc. 70, 39th Cong., 2d Sess. H. Doc. 181, 39th Cong., 2d Sess. ¹
43.	Mar. 2, 1945	POINT LOOKOUT HARBOR (AU GRES RIVER), MI Breakwaters, Anchorage Area, Channel Dredging.	H. Doc. 446, 78 th Cong., 2d Sess.
44.	Mar. 2, 1945 Jul. 16, 1984 Jul. 11, 1987	PORT AUSTIN HARBOR, MI Breakwater, Anchorage Basin, Channel Dredging. Construct a breakwater access for recreation purposes. Breakwater.	H. Doc. 446, 78 th Cong., 2d Sess. H. R. 5653, 98 th Cong., 2d Sess. P. L. 98-360 (98Stat. 405) Sec. 106 P. L. 100-71.
45.	Mar. 2, 1945	PORT SANILAC HARBOR, MI Entrance Channel 12 feet deep, Anchorage Basin, Breakwater.	H. Doc. 446, 78th Cong., 2d Sess.
46.	Jul. 11, 1870 Aug. 14, 1876 Aug. 30, 1935 ²⁷ Jul. 3, 1958 ²⁸ Jan. 3, 1996	PORT WASHINGTON HARBOR, WI North pier and south basin. ¹² North basin. North breakwater, removal of 650 feet of north pier, outer turning basin, present project dimensions of channel and basin and extension of south breakwater. Extending and raising of north breakwater and placing rubble along sides; removing 456 feet of south breakwater and dredging in outer basin. Deauthorization of portion of the navigation project.	H. Ex. Doc. 28, 41st Cong., 2d Sess. and Annual Report, 1879, p. 119. Annual Report, 1876, pt. 2, p. 379. H. Doc. 168, 72d Cong., 1st Sess. and Rivers and Harbors Committee Doc. 41, 74th Cong., 1st Sess. H. Doc. 446, 83rd Cong., 2d Sess. ¹ Sec. 501(17) of WRDA of 1996.
47.	Jun. 13, 1902 Jun. 30, 1948 Aug. 5, 1977	PORT WING HARBOR, WI Construction of parallel piers and dredging. Dredging inner channels and abandonment of certain revetments and channels. Deauthorization of 50 feet of entrance channel widening.	H. Doc. 114, 56th Cong., 1st Sess. H. Doc. 668, 80th Cong., 2d Sess.
48.	Mar. 3, 1879	PORTAGE LAKE HARBOR, MI Entrance channel 18 feet deep protected by piers and revetments.	Annual Report 1879, p. 1634 ³⁰
49.	Jun. 3, 1896 Jun. 13, 1902 Aug. 30, 1935 Jul. 14, 1960	PRESQUE ISLE HARBOR, MI Breakwater, 1000 feet long. Shore extension, 216 feet long. For dredging and rubblemound extension to breakwater 1,600 feet long; Changed designation of project. Deepening harbor from 26 and 28 feet to 28 and 30 feet, respectively.	H. Doc. 318, 54 th Cong., 1st Sess.; Annual Report, 1903, pp. 474, 1823 H. Doc. 473, 72d Cong., 2d Sess. H. Doc. 145, 86 th Cong., 1 st Sess.
50.	Aug. 8, 1917 Aug. 30, 1935 ^{2,24,25} Jul. 3, 1958 ²	ROUGE RIVER, MI 21-foot channel via the Shortcut Canal 25-foot channel at mouth of Old Channel, 1,425 feet long and adjacent to latter; 21-foot channel extending from junction of Old Channel and Shortcut Canal into Old Channel to Detroit, Toledo & Ironton R.R. Bridge. Old Channel; 100 feet wide from Peerless Cement Corp.	H. Doc. 1063, 64th Cong., 2d Sess. ²³ H. Doc. 125, 85th Cong., 1st. Sess.

DETROIT, MI DISTRICT

TABLE 21-B (Continued)

AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
	Oct. 23, 1962 ²	To Junction with Shortcut Canal widened to 150 feet at 2 bends. 25-foot channel over modified limits from Detroit River to Jefferson Avenue (via Shortcut Canal).	H. Doc. 509, 87th Cong., 2d Sess. ¹
51.	Jun. 25, 1910	SAGINAW RIVER, MI Channel 200 feet wide, with depth of 18.5 feet in Bay and 16.5 feet in River.	H. Doc. 740, 61st Cong., 2d Sess.
	Jul. 3, 1930	Project Depth of 18.5 feet extended up River to Saginaw.	Rivers and Harbors Committee Doc. 30, 71st Cong., 2d Sess.
	Aug. 26, 1937	Turning Basin.	Rivers and Harbors Committee Doc. 21, 75th Cong., 1st Sess.
	Jun. 20, 1938	Present project channel dimensions from Bay to Sixth Street Bridge in Saginaw.	H. Doc. 576, 75th Cong., 3rd Sess.
	Sep. 3, 1954	New Channel in Bay, 350 feet wide and 24 feet deep from 24-foot contour to River Mouth, Project Depth of 24 feet in River Channel up to Detroit & Mackinac Railway Bridge, Project Depth of 22 feet in River Channel up to Sixth Street Bridge, Turning Basins at Essexville and Carrollton, and elimination of present Channel in Bay.	H. Doc. 500, 83rd Cong., 2d Sess.
	Oct. 23, 1962	Deepen Bay Channel, Deepen River Channel to Detroit & Mackinac Bridge, Extend 22-foot project above Sixth Street Bridge, Deepen Essexville Turning Basin, and Construct 2 new Turning Basins. ³	H. Doc. 554, 87th Cong., 2d Sess.
	Oct. 27, 1965	Deepen River Channel to 25 feet, from Detroit & Mackinac Bridge to New York Central Railroad Bridge.	H. Doc. 240, 89th Cong., 1st Sess. ¹
52.	Jul. 13, 1892	ST. CLAIR RIVER, MI 20-foot Channel in the River.	H. Doc. 207, 51st Cong., 2d Sess.
	Jul. 8, 1930	Deepen Channel to 25 and 26 feet, and Compensating Works.	H. Doc. 253, 70th Cong., 1st Sess.
	Mar. 2, 1945	Widening Channel at Southeast Bend to 700 feet.	H. Doc. 309, 77th Cong., 1st Sess.
	Jul. 24, 1946 ²²	Widen and deepen Southeast Bend and improve Outlet of North Channel, St. Clair River.	H. Doc. 335, 80th Cong., 1st Sess.
	Mar. 21, 1956 ²²	Deepen and further improve Channels in St. Clair River between limits of 27.1 to 30 feet to provide safe navigation by vessels with drafts of 25.5 feet. A cutoff Channel in Canada at Southeast Bend and abandon old Southeast Bend Channels.	S. Doc. 71, 84th Cong., 1st Sess.
	Nov. 17, 1986	Deauthorization of the work authorized by the Rivers and Harbors Act of Jul. 24, 1946.	H. R. 6 (formerly S. 1567), 99th Cong., 2d Sess. (WRDA of 1986).
53.	Mar. 3, 1875	ST. JOSEPH HARBOR, MI Interior Revetments. ²⁶	H. Ex. Doc. 160, 43rd Cong., 2d Sess., and Annual Report, 1875, pt. 1, p. 162.
	Jun. 14, 1880	Benton Harbor Canal. ²⁶	Annual Report, 1880, pp. 2030, 2031, 2049, and 2055.
	Mar. 3, 1899	Present project dimensions of piers and a turning basin.	H. Doc. 307, 55th Cong., 2d Sess., and Annual Report, 1898, p. 2496.
	Aug. 30, 1935	Present project dimensions of the channel and turning basin near mouth of Paw Paw River.	Rivers and Harbors Committee Doc. 52, 74th Cong., 1st Sess.
	Jun. 2, 1937	Abandon easterly 1,000 feet of canal above west line of 9th Street.	
	Mar. 2, 1945	Turning basin above mouth of Morrison Channel and eliminate turning basin near mouth of Paw Paw River.	H. Doc. 129, 76th Cong., 1st Sess.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 21-B (Continued)

AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
	Jul. 3, 1958	Maintenance of turning basin near mouth of Paw Paw River.	S. Doc. 95, 84th Cong., 2d Sess. ¹
54.		SAUGATUCK HARBOR AND KALAMAZOO RIVER, MI	
	Jun. 3, 1896	Entrance Channel, Piers and Revetments.	H. Doc. 912, 54th Cong., 1st Sess.; Annual Report, 1896, Vol. 2, Pt. 5, p. 2739.
	Mar. 2, 1907	Deepening entrance to 16 feet.	Annual Report, 1907, p. 6416.
	Jun. 25, 1910	Deepening Channel in River to 14 feet.	H. Doc. 635, 61st Cong., 2d Sess.
55.		SAXON HARBOR, WI	
	Jul. 3, 1958	Provides for east and west breakwaters, an outer channel 10 feet deep, an inner basin and side channel 8 feet deep, and a diversion of Orono Creek to Parkers Creek by 3 short reaches of channel excavation and a levee.	River and Harbors Act, H. Doc. 169, 85 th Cong., 1st Sess., ¹ Annual Report for 1965, p. 1025.
56.		SEBEWAING RIVER, MI	
	Jun. 3, 1896	Entrance Channel 8 feet deep, 100 feet wide and 15,000 feet long in Saginaw Bay.	H. Doc. 71, 54th Cong., 1st Sess.
57.		SHEBOYGAN HARBOR, WI	
	Mar. 2, 1907	North breakwater.	H. Doc. 62, 59th Cong., 1st Sess.
	Jan. 21, 1927	Preserving south pier as part of project, providing turning basin, and elimination of proposed south breakwaters.	H. Doc. 475, 68th Cong., 2d Sess.
	Aug. 30, 1935	Present project dimensions of channel.	Rivers and Harbors Committee Doc. 47, 74th Cong., 1st Sess.
	Sep. 3, 1954	Widen and deepen outer harbor entrance channel to 450 feet, widen and deepen river channel from present project limit to north side of Jefferson Avenue.	H. Doc. 554, 82d Cong., 2d Sess. ¹
58.		SOUTH HAVEN HARBOR, MI	
	Aug. 11, 1888	Channel from Inner End of Piers to Highway Bridge. ¹²	No Prior Survey or Estimate.
	Mar. 3, 1905	Present dimensions of Piers and for a Turning Basin.	H. Doc. 119, 58th Cong., 2d Sess.
	Aug. 30, 1935	Present project dimensions of Channel and Turning Basin.	Rivers and Harbors Committee Doc. 9, 73rd Cong., 1st Sess. ¹ and Unpublished review Report of Chief of Engineers, dated Dec. 21, 1934.
	Oct. 31, 1992	Turning Basin deauthorized.	Public Law 102-580 (Section 116 of WRDA of 1992).
59.		STURGEON BAY AND LAKE MICHIGAN SHIP CANAL, WI	
	Mar. 3, 1873	Breakwaters. ¹²	H. Ex. Doc. 34, 42d Cong., 2d Sess.; Annual Report, 1872, p. 171.
	Jul. 13, 1892	Acquisition of the canal.	H. Ex. Doc. 106, 49th Cong., 2d Sess.
	Jun. 13, 1902	Canal revetments and consolidation of canal and harbor works.	H. Doc. 117, 56th Cong., 2d Sess.
	Aug. 30, 1935	Present project dimensions of channels and elimination of turning basin immediately west of revetted canal.	Rivers and Harbors Committee Doc. 9, 74th Cong., 1st Sess.
	Mar. 2, 1945	Turning basin between city and Bushman wharves.	H. Doc. 421, 78th Cong., 2d Sess.
60.		TWO HARBORS, MN	
	Aug. 5, 1886	Breakwater and dredging.	H. Ex. Doc. 94, 48 th Cong., 2d Sess.
	Aug. 5, 1886	Construction of two breakwater piers.	Annual Report, 1887, p. 1952.
	Aug. 30, 1935	Shore connection to east breakwater and dredging	Rivers and Harbors Committee

DETROIT, MI DISTRICT

TABLE 21-B (Continued)

AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
	Nov. 7, 1945	maneuvering area. Construct new east breakwater and enlargement of maneuvering basin.	Doc. 17, 72d Cong., 1 st Sess. H. Doc. 805, 78 th Cong., 2d Sess.
	Jul. 14, 1960	Deepen harbor project depths from 26 and 28 feet to 28 and 30 feet, respectively.	H. Doc. 146, 86 th Cong., 1 st Sess. ¹
61.		TWO RIVERS HARBOR, WI	
	Mar. 3, 1871	South pier, 750 feet of north pier, and about 44 feet of north revetment. ¹²	Annual Report, 1871, p. 123 (as modified by Chief of Engineers, Feb. 27, 1897).
	Mar. 2, 1907	Remainder of north pier and stilling basin.	H. Doc. 730, 59th Cong., 1st Sess., Modification of Plan A.
	Aug. 30, 1935 ²²	Deepening entrance channel and inner basin to 18 feet.	Rivers and Harbors Committee Doc. 25, 73rd Cong., 2d Sess.
	Jul. 3, 1958	Extend existing project in West Twin River to 18 feet deep and in East Twin River to 10 feet deep to 22nd Street Bridge.	H. Doc. 362, 84th Cong., 2d Sess. ¹
62		WHITE LAKE HARBOR, MI	
	Mar. 2, 1867	New Channel, with Piers and Revetments.	Unpublished Survey Report of 1868.
	Mar. 3, 1873	New Channel, with Piers and Revetments.	Unpublished Survey Report of 1868.
	Jul. 5, 1884	New Channel, with Piers and Revetments.	Unpublished Survey Report of 1868.
	Jul. 13, 1892	New Channel, with Piers and Revetments.	No Prior Survey or Estimate. ³¹
	Mar. 2, 1907	Present project depth of Channel.	
71.		FORT WAYNE METRO AREA, IN	
	Oct. 30, 1990	Provides 100-year level of flood protection to part of Central area of city of Fort Wayne, IN.	Public Law 101-640 (Section 101 of WRDA of 1990)
72.		SAGINAW RIVER, MI, FLOOD CONTROL	
	Jul. 3, 1958	Flood control improvements to Saginaw River and its tributaries including Tittabawassee, Shiawassee, Flint, and Cass Rivers.	H. Doc. 346, 84th Cong., 2d Sess. ¹
	Aug. 17, 1991	One-time O&M repairs at Flint Unit to restore project to original dimensions.	Energy and Water Development Appropriation Act of 1992, (P.L. 102-104).
	Oct. 8, 1992	Provides funding for continuing O&M repairs at Flint Unit.	
	Jan. 3, 1996	Project is modified to include as part of the project the design and construction of an inflatable dam.	Energy and Water Resources Appropriation Act of 1993, H.R. 5373, (P.L. 102-377). Sec. 329 of WRDA 1996.
73.		SEBEWAING RIVER, MI	
	Aug. 18, 1941	Enlarging present Channel of Sebewaing River, altering Railroad and Highway Bridges, removal of Dike.	H. Doc. 286, 76th Cong. 1st Sess. ¹
78.		ST. MARYS RIVER, MI	
	Jul. 11, 1870	Weitzel Lock (Replaced in 1943 by MacArthur Lock), widen and deepen existing State Channel. ²⁶	Report by Maj. O.M. Poe, Corps of Engineers, not published.
	Aug. 5, 1886	Poe Lock. ¹	H. Ex. Doc. 72, 49th Cong., 2d Sess.
	Jul. 13, 1892	Dredging through shoals above falls and shoals below falls between lower end of Canal and upper entrance Channel into Lake Nicolet (formerly Hay Lake).	H. Ex. Doc. 207, 51st Cong., 2d Sess., and Annual Report, 1891, p. 2810.
	Jun. 13, 1902	Enlarging the Old Channel.	H. Doc. 138, 56th Cong., 2d Sess., and 215, 58th Cong., 3rd Sess.
	Jun. 13, 1902	Lake Nicolet and Neebish Channels work in that section of River below Locks.	H. Doc. 128, 56th Cong., 2d Sess.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 21-B (Continued)

AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
	Mar. 2, 1905		H. Doc. 215, 56th Cong., 3rd Sess.
	Mar. 3, 1907	Davis Lock Second Canal, and Emergency Dam.	H. Doc. 333, 59th Cong., 2d Sess. (Plan 3).
	Mar. 3, 1909	Lease of Waterpower at Falls, Lease entered into with Michigan Northern Power Company provided for construction of remedial and compensating works.	
	Jul. 25, 1912	Fourth Lock (Renamed 'Sabin' Lock in 1943).	H. Doc. 65, 62d Cong., 1st Sess.
	Mar. 4, 1915	Deepen Tailrace of Power Plant.	
	Sep. 22, 1922	Widen upper approach to Canals through Vidal Shoals, extend anchorage and maneuver area below locks.	District Engineer Report, Oct. 29, 1920.
	Jan. 21, 1927	Remove Round Island, middle ground extension of Northwest Canal Pier, and widen Channels Middle Neebish Route.	H. Doc. 270, 69th Cong., 1st Sess.
	Jul. 3, 1930	Deepen Channels throughout downbound Route.	H. Doc. 253, 70th Cong., 1st Sess.
	Jun. 26, 1934 ⁹	Operation and Care of Canal and Locks provided from War Department Appropriations for Rivers and Harbors.	
	Aug. 30, 1935	Widen Brush Point Turn and Channel from Brush Point to Point Louise.	Rivers and Harbors Committee Doc. 53, 74th Cong., 1st Sess. H. Doc. 218, 77th Cong., 1st Sess.
	Mar. 7, 1942	Construct new (MacArthur) Lock on site of former Weitzel Lock, deepen approach Channels to 27 feet, and reconstruct approach Piers.	
	Jun. 15, 1943	Name 'MacArthur' Lock and changed name of 'Fourth' Lock to 'Sabin' Lock.	
	Mar. 2, 1945	Remove Bridge Island and construct new Hydroelectric Power Plant.	H. Doc. 679, 78th Cong., 2d Sess., and 339, 77th Cong., 1st Sess.
	Jul. 24, 1946	Replace Poe Lock at St. Marys Falls Canal with a new structure 800 feet long, 100 feet wide and 32 feet deep with necessary construction of Nose and Center Piers, and widen and deepen Channel across Point Iroquois Shoals and in Lake Nicolet to provide wider anchorage and maneuver areas in St. Marys River.	H. Doc. 335, 80th Cong., 1st Sess.
	Mar. 21, 1956	Deepen to provide a Project Safe Draft of 25.5 feet over full width to downbound and 2-way Channels (including anchorage areas) and over Westerly 300-foot width of upbound Middle Neebish Channel, when levels of Lakes Superior and Huron are at their respective LWD's.	S. Doc. 71, 84th Cong., 1st Sess. ¹
	Jul. 9, 1956	Repeal Authorization of Bridge as a part of Project, authorize alteration with cost to be apportioned by Sec. 6, Truman Hobbs Act, Jun. 21, 1940.	None.
	Nov. 17, 1986	Construct a second large lock 1,294 feet in length, 115 feet in width, and 32 feet in depth, adjacent to the existing lock. The replacement lock is to be located in the North Canal of the St. Marys Falls Canal at Sault Ste. Marie, MI, on the site of the existing Davis and Sabin Locks.	H. R. 6 (formerly S. 1567), 99th Cong., 2d Sess. (WRDA of 1986).

DETROIT, MI DISTRICT

TABLE 21-B (Continued)

AUTHORIZING LEGISLATION

See Sec.	Date of Authorizing Act	Project and Work Authorized	Documents
		<p>¹Contains latest published map.</p> <p>²Including Emergency Relief Administration Work authorized May 28, 1935.</p> <p>³Included in Public Works Administration Program September 6, 1933.</p> <p>⁴This modification deauthorized August 5, 1977, under Section 12, Public Law 93-251.</p> <p>⁵Administrative Act, Section 4.</p> <p>⁶Public Law 568, 82d Congress.</p> <p>⁷Public Law 388, 87th Congress.</p> <p>⁸This portion inactive.</p> <p>⁹Permanent Appropriations Repeal Act.</p> <p>¹⁰Transfer completed June 1962.</p> <p>¹¹Amended 1868, 1879, 1892.</p> <p>¹²Completed under previous project.</p> <p>¹³Included in Public Works Administration Program January 3, 1934.</p> <p>¹⁴Inactive portion; removal of 200 linear feet of north pier, widening inner 200 feet of channel through outer basin, and closing gap in north shore connection of breakwater.</p> <p>¹⁵Latest published map is in Annual Report, 1914, p. 2974.</p> <p>¹⁶Latest published map in Annual Report, 1914, p. 2914.</p> <p>¹⁷Superseded by Act of October 23, 1962.</p> <p>¹⁸Uncompleted portion was deauthorized in 1977 (dredging Milwaukee River from Buffalo Street Bridge to North Humboldt Avenue Bridge).</p>	<p>¹⁹Modified by Act of June 10, 1872.</p> <p>²⁰Riprapping of protecting dikes portion of project is inactive.</p> <p>²¹War Department Appropriations Act.</p> <p>²²Uncompleted portion deauthorized December 31, 1989, under Section 1001, P.L. 99-662.</p> <p>²³Contains latest published maps. See also map with Rivers and Harbors Committee Doc. 19, 72d Cong., 1st Sess.</p> <p>²⁴Except for dredging 25-foot channel to 1,150 feet upstream of mouth of old channel, work authorized in this Act is considered inactive.</p> <p>²⁵This modification deauthorized August 5, 1977, under Section 12, Public Law 93-251.</p> <p>²⁶Completed under previous projects. Public Law 130, 75th Cong., 1st Sess.</p> <p>²⁷Work recommended in H. Doc. 588, 64th Cong., 1st Sess.</p> <p>²⁸Deauthorized in 1977.</p> <p>²⁹This modification deauthorized December 31, 1989, under Section 1001, P.L. 99-662.</p> <p>³⁰Latest published map is in H. Doc. 588, 64th Cong., 1st Sess.</p> <p>³¹Latest published map is in H. Doc. 2053, 64th Cong., 1st Sess.</p>

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 21-C OTHER AUTHORIZED NAVIGATION PROJECTS

Project	Status	For Last Full Report See Annual Report for	Cost to Sep. 30, 2003	
			Construction	Operation & Maintenance
Algoma Harbor, WI	Completed	2002	292,010 ¹	1,711,597
Alternative Technology Project, Duluth	Active	---	0	984,820 ²
Ausable Harbor, MI	Completed	2002	209,776 ³	3,183,299
Bayfield Harbor, WI	Completed	1979	183,855	174,207 ²
Bell River, MI	Completed	1980	24,301	135,377
Beaver Bay, MN	Active	1982	293,000	2,818
Big Bay Harbor, MI	Completed	2000	396,943 ⁴	1,727,348
Black River (Icona Co), MI	Inactive	1907	0	878
Caseville Harbor, MI	Completed	2000	587,314	2,027,751
Cedar River Harbor, MI	Completed	2002	408,000	3,663,229
Channels in Straits of Mackinac, MI	Completed	1991	2,832,629	263,180
Cheboygan Harbor, MI	Completed	1998	504,236	1,050,729 ²
Chippewa Harbor, Isle Royale, MI	Completed	1959	125,629	17,829
Clinton River Spillway, MI	Completed	2002	3,495,008	0
Cornucopia Harbor, WI	Completed	2002	462,653	1,461,179
DeTour Harbor, MI	Completed	1989	2,559,346	172,543 ²
Eagle Harbor, MI	Completed	1996	205,164 ⁵	142,528 ²
Grand Marais Harbor, MN	Completed	2002	450,972	2,565,639
Grays Reef Passage, MI	Completed	1970	190,521	867,934
Greilickville Harbor, MI	Completed	2000	369,557 ⁶	452,641
Hammond Bay Harbor, MI	Completed	1998	1,092,366	1,072,489 ²
Harbor Beach Harbor, MI	Completed	2000	1,200,598	15,826,715 ⁷
Harrisville Harbor, MI	Completed	2002	2,639,392	1,631,494
La Point Harbor, WI	Completed	2000	139,874	189,857
Les Cheneaux Island Channels, MI	Completed	1980	399,478	373,739

DETROIT, MI DISTRICT

Project	Status	For Last Full Report See Annual Report for	Cost to Sep. 30, 2003	
			Construction	Operation & Maintenance
Little Bay De Noc, Gladstone Harbor, MI	Completed	1966	332,832	105,634
Lutsen Harbor, MN	Active	1982	357,000	0
Mackinac Island Harbor, MI	Completed	1989	334,089	1,816,628
Mackinaw City Harbor, MI	Completed	1986	136,286 ⁸	127,679 ²
Northport Harbor, WI	Inactive	----	0	0
Pensaukee Harbor, WI	Completed	1996	34,035	684,587 ²
Petoskey Harbor, MI	Completed	2000	123,839	963,539
Pine River, MI	Completed	1980	13,649	102,484
Silver Bay Harbor, MN	Completed	1999	2,600,000	0
St. James, Beaver Island, MI	Completed	1957	49,171 ⁹	580,975
St. Joseph River, MI	Completed	1975	54,555	19,185
Tawas Bay Harbor, MI	Completed	1996	2,110,745	108,980 ²
Washington Island, WI	Completed	1950	62,838	108,823 ²
Whitefish Point Harbor, MI	Completed	2000	771,639	595,379

¹ Includes \$92,774 for previous projects.

²Includes FY 01 cost not reported.

³ Includes \$114,786 for previous projects.

⁴ Excludes \$56,500 Contributed Funds.

⁵ Excludes \$27,800 for previous projects.

⁶ Excludes \$127,000 Contributed Funds.

⁷ Includes \$243,100 for Diked Disposal.

⁸ Excludes \$210,500 Contributed Funds.

⁹Excludes \$7,500 Contributed Funds.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 21-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS

					Cost to Sep. 30, 2003
Project	Status	For Last Full Report See Annual Report for	Construction	Operation & Maintenance	
Kawkawlin River, MI ^{1,2}	Completed	1999	1,000,000	470,500	
Kalamazoo River (Battle Creek) MI ^{3,4}	Deferred	1975	4,471,235	----	
Paw Paw Lake, MI	Completed	1989	3,589,000	----	
Upper Peninsula of Michigan, MI ⁵	Active	----		2,322,624	
Upper River Rouge, MI ⁶	Inactive	1968	7,935		
River Rouge, MI	Completed	1981	31,960,332	----	
¹ Excludes \$204,559 Contributed Funds.			⁴ Uncompleted portion deauthorized Dec. 31, 1989, in accordance with Section 1001 of the W.R.D.A. of 1986 (PL 99-662).		
² Excludes 228,748 Contributed Funds.			⁵ Project authorized in FY02. No costs were expended in FY02.		
³ Includes \$108,335 Contributed Funds.			⁶ Planning indefinitely suspended due to lack of local cooperation.		

**TABLE 21-F MULTIPLE PURPOSE PROJECTS, INCLUDING POWER
ST. MARYS RIVER, MI: EXISTING PROJECT
(SEE SECTION 78 OF TEXT)**

Lock	Davis	Sabin	MacArthur	New Poe
Miles Above Mouth	47	47	47	47
Clear Width of Chamber Feet	80	80	80	110
Length Between Gate Quoins Feet	1,350	1,350	800	1,200
Lifts Feet	21.7	21.7	21.7	21.7
Depth Over Upper Breast Walls ¹ Feet	24.3	24.3	31	32
Depth Over Lower Breast Walls ¹ Feet	23.1	23.1	31	32
Foundation	Rock	Rock	Rock	Rock
Type of Construction	Concrete	Concrete	Concrete	Concrete
Estimated Cost	\$6,200,000 ²	\$3,275,000 ³	\$12,909,440	\$39,000,000
Actual Cost	\$2,200,000 ⁵	\$1,750,000 ⁶	\$12,718,806 ^{4,7}	\$34,813,066
Completed (Open to Commerce)	Oct. 21, 1914	Sep. 18, 1919	Jul. 11, 1943	Jun. 26, 1969
Emergency Dam for	South Canal		North Canal	
Miles Above Mouth	47		47	
Estimated Cost	- ⁹		\$300,000	
Type	Steel Stoplogs		Steel Stoplogs	
	Recessed		Recessed	
	Into Lock Masonry		Into Lock Masonry	
Cost Completed	- ⁹		\$169,224 ⁸	
Year Completed	1943		1922 (Modified 1963)	

¹At low water datum 600.6 above and 578.4 below.

²Includes cost of North Canal.

³Includes cost of canal excavations to provide necessary approaches to lock, canal walls, piers, and emergency dam, \$662,919.

⁴Excludes cost of deepening and enlarging South Canal, \$1,653,378.

⁵Excludes cost of North Canal, \$2,572,611.

⁶Excludes cost of canal excavation to provide necessary approaches to lock, canal walls, piers, and emergency dam, \$662,919.

⁷Excluding cost of lower guard gates which were never installed.

⁸Including engineering office and inspection.

⁹Not separate from cost of locks.

Note: Limiting draft to locks is determined by depth over breast walls.

TABLE 21-G

**DETROIT, MI DISTRICT
DEAUTHORIZED PROJECTS**

Project	For Last Full Report See Annual Report For	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended
Beaver Bay, MN (Mar. 2, 1945 R&H Act)	1982	Jul 1995	295,818	0
Berrien County, MI (St. Joseph Shore) beach erosion control (1958 Flood Control Act)	1963	Nov 1986	0	0
Black River Harbor, Alcona County, MI (Authorized Dec.17, 1979, under Section 201 of the 1965 Flood Control Act)	1971	Dec 1989	0	0
Black River Harbor, MI (Aug. 30, 1935 R&H Act)	1976	Nov 1977	0	0
Cross Village, MI (October 13, 2001 WRDA 96, Sec 328)	1983	Oct 2001	364,000	0
Detroit River, Trenton Chnl., MI (May 17, 1950 R&H Act)	1976	Aug 1977	0	0
Detroit River, Trenton Chnl., MI (Uncompleted portion) (Aug. 13, 1968 R&H Act)	1976	Dec 1989	159,300,000	0
Duluth-Superior Inner Harbor, MN and WI (Jul. 14, 1960 R&H Act)	1990	Dec 1989	14,562,100	0
Forestville Harbor, MI (1968 R&H Act)	1969	Nov 1986	0	0
Grand Haven Harbor, MI (Mar. 2, 1945 R&H Act)	1976	Nov 1977	0	0
Grand River at Grandville, MI (Oct. 27, 1965 Flood Control Act)	1966	Nov 1977	0	0
Great Lakes Connecting Channels, MI ¹ (Uncompleted portion) (R&H Acts of 1946 and 1956)	1990	Dec 1989	93,993,349	0
Green Bay Harbor, Brown County, WI (1962 Modification)	1999	April 1999	4,030,000	1,970,000
Harbors of Washington Island, WI (R&H Act of 1937)	1950	Dec 1989	62,838	0
Holland Harbor Entrance Channel, MI (Uncompleted portion) (Sep. 3, 1954 R&H Act)	1962	Dec 1989	0	0
Kalamazoo River, Battle Creek, MI (Uncompleted portion) (1954 Flood Control Act)	1975	Dec 1989	6,656,668	108,332
Kalamazoo River, Kalamazoo, MI (Jul. 3, 1958 Flood Control Act)	1975	Dec 1989	416,822	0

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 21-G (Continued)

DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended
Kenosha Harbor, WI (Uncompleted portion) (Oct. 23, 1962 R&H Act)	1990	Dec 1989	552,000	43,000
Kewaunee River, WI (1960 R&H Act)	1976	Aug 1977	0	0
Lansing (Grand River), MI (Jul. 3, 1958 Flood Control Act)	1971	Jun 1981	7,000	0
Lower Fox River, WI (Uncompleted portion) (Mar. 3, 1925 R&H Act)	1990	Dec 1989	3,753,334	0
Lutsen Harbor, MN (Mar. 2, 1945 R&H Act)	1990	Jul 1995	357,000	0
Manitowoc Harbor, WI (Oct. 23, 1962 R&H Act)	1990	Dec 1989	0	0
Milwaukee Outer Harbor, WI (Uncompleted portion) (R&H Act of 1935)	1990	Dec 1989	6,937,804	478,000
Northport Harbor, WI (Authorized in 1972 under Section 201 of the 1965 Flood Control Act)	-	Dec 1989	132,000	0
Ontonagon Harbor, MI (R&H Act of 1962)	1990	Dec 1989	27,482	0
Pentwater Harbor, MI (Jul. 13, 1892 R&H Act)	1976	Nov 1977	0	0
Port Washington Harbor, WI (Portion) (Sec. 501(17) of WRDA 1996)	2003	Jan 1996	0	0
Racine Harbor, WI (Mar. 2, 1907; Aug. 26, 1937; and Mar. 2, 1945 R&H Acts, and Section 107 of the 1960 R&H Act)	1963	May 1986	9,441,554	0
Red Run Drain, Lower Clinton River, MI (1970 Flood Control Act)	1983	Nov 1986	3,823,000	0
Rogers City Harbor, MI (Jun. 25, 1910 R&H Act)	1926	Aug 1977	5,892	0
Rouge River, MI (Oct 23, 1962 R&H Act)	1976	Aug 1977	22,000	0
Rouge River, MI (Jul. 3, 1958 R&H Act)	1976	Aug 1977	12,000	0
Rouge River, MI (Aug. 30, 1935 R&H Act)	1976	Aug 1977	0	0
Saginaw River, MI (Midland on Tittabawassee River)	1983	May 1997	5,125,000	1,611,500

DETROIT, MI DISTRICT

TABLE 21-G (Continued)

DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended
St. Clair River Compensating Works, MI (Jul. 3, 1930 R&H Act)	1976	Aug 1977	0	0
South Milwaukee Harbor, WI (1836 Flood Control Act)	1906	Aug 1977	0	0
St. Marys River (MacArthur Lock Guard Gates), MI (Mar. 7, 1942 R&H Act)	1977	Oct 1978	0	0
Two Rivers Harbor, WI (Uncompleted portion) (Aug. 30, 1935 R&H Act)	1990	Dec 1989	147,463	0

¹Includes Detroit and St. Clair Rivers.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 21-H FEATURES OF EXISTING PROJECT

Name of Channel	Length of Channel (Feet)	Miles from River Mouth	Upbound or Down- bound Vessels	Project Width (Feet)	Project Depth (Feet)	Project Datum Planes IGLD 1985 (Feet)	Year Comp lete
DETROIT RIVER, MI (SEE SECTION 11 OF TEXT)							
Channel north of Belle Isle ¹	--- ²	30	Both	200	21.0	571.9	1964
Channel at head of Detroit River	38,800	32	Both	800	28.5	572.1-571.5	1964
Misc. shoals and obstructions	44,500	25	Both	---	28.5	571.5-570.9	1964
Belle Isle to Fighting Island Channel							
Fighting Island Channel	24,800	17	Both	800	28.5	570.4	1962
Ballards Reef Channel north of Junction with Livingstone Channel	12,200	12	Both	600	28.5	570.4	1964
Livingstone Channel Upper	26,000	10	Down	450	27.7	570.4-569.2	1964
Livingstone Channel Lower:							
CS 260+00 to 368+87	10,887	5	Down	450-800	29.0	569.2	1961
CS 368+87 to 492+00	12,313	---	Both	800-1,200	29.0	569.2	1961
East Outer Channel	42,000	---	Both	1,200	28.5	569.2	1964
Misc. shoals and obstructions, Detroit River to Pelee Passage	---	---	Both	---	28.5-29.5 ³	569.2	1964
Pelee Passage Shoal	---	---	Both	---	29.5	569.2	---
Amherstberg Channel:							
Upper Section, Ballards Reef Channel	6,500	10	Up	600	27.5	570.4-570.1	1960
Middle Section	12,000	---	Up	600	21-27.5 ⁴	570.1-569.5	1960
Lower Section, Hackett Range	24,000	---	Up	600	21-28.5 ⁵	569.5-569.2	1960
West Outer Channel	21,000	---	Down	800	22.0	569.2	1929
Trenton Channel:							
Wyandotte Reach	31,500	17	Local	300	27.0		1964 ⁶
Trenton Channel (Upper)	5,100	---	Local	300	28.0	570.3-570.2	1964
Trenton Reach (Lower)	600	---	Local	250-300	28.0	570.2-569.4	1941
Grosse Ile Shoal	600	14	Local	---	20.0	570.4	1904
ST. CLAIR RIVER, MI (SEE SECTION 52 OF TEXT)							
Channel at foot of Lake Huron	26,500	44	Both	800	30.0	577.5-577.1	1961
Channel north of Blue Water Bridge	4,100	39	Both	800	30.0	577.1-576.5	1962
Port Huron to Stag Island:							
Widening at Upper and Lower	38,000	38	Both	1,000-	27.4	577.1-575.3	1961
Ends of Stag Island	37,600	31	Both	1,400	27.3	575.3-574.3	1962
St. Clair to Russell Island	77,000	24	Both	900-1,000	27.3	574.3-572.6	1962
Russell Island to Southeast Bend	20,600	11	Both	1,000	27.2	572.6-572.3	1962
Southeast Bend:				700-1,000			
CS 324+00 to 250+00	7,400	5	Both		27.1	572.3-572.2	1962
Cutoff Channel	30,300	---	Both	700	27.1	572.2	1962
North Channel Outlet	8,000	---	Small Craft	700 100	10.0	572.2	---

¹This is a side channel.

²Extends from deep water near Windmill Point to a point opposite Fairview Slip, about 3,000 feet.

³Project depth 29.5 feet over Rock Shoals and 28.5 feet over other than Rock Shoals.

⁴Project depth 21 feet in easterly 300-foot width of

channel and 27.5 feet in westerly 300-foot width.

⁵Project depth 21 feet in easterly 300-foot width of channel and 28.5 feet in westerly 300-foot width.

⁶Project complete except for work authorized by Rivers and Harbors Act of 1950.

DETROIT, MI DISTRICT

TABLE 21-I

FOX RIVER, WI: LOCKS AND DAMS
(SEE SECTION 13 OF TEXT)

Name of Lock and Dam	Miles from Green Bay	Nearest Town	Distance (miles)	Clear Width (feet)	Depth at Normal Pool		Breast Wall ¹ (feet)	Lower Miter Sill (feet)	Character of Foundation	Kind of Dam	Type of Construction	Year Complete	Actual Cost
					Avail-able Length (feet)	Lift (feet)							
DePere lock ²	7.1	DePere	---	36.0	146.0	8.9	10.3	12.0	Rock	---	Concrete	1936	\$229,308
DePere dam ²	7.2	DePere	---	---	---	---	---	---	Rock	Fixed ^{3,4}	Concrete	1929	209,536
Little Kaukauna lock ²	13.0	DePere	6	36.0	146.0	7.2	8.0	9.5	Clay	---	Concrete	1938	362,427
Little Kaukauna dam ²	13.1	DePere	6	---	---	---	---	---	Clay & Gravel	Fixed ^{3,4}	Piers and concrete	1926	179,398
Rapid Croche lock ²	19.2	Wrightstow	2	36.0	146.0	8.3	8.8	9.3	Rock	---	Concrete	1934	228,738
Rapide Croche dam ²	19.3	Wrightstow	2	---	---	---	---	---	Rock	Fixed ^{3,4}	Concrete	1930	118,975
Kaukauna fifth lock ²	22.8	Kaukauna	---	35.6	144.0	9.1	6.7	9.3	Rock	---	Composite	1898	13,310 ⁵
Kaukauna fourth lock ²	23.1	Kaukauna	---	36.6	144.1	10.2	6.9	6.0	Rock	---	Stone masonry	1879	37,536
Kaukauna third lock ²	23.3	Kaukauna	---	30.6	144.0	10.2	6.9	6.3	Rock	---	Stone masonry	1879	39,948
Kaukauna second lock ²	23.4	Kaukauna	---	35.0	144.0	9.6	6.0	6.0	Rock	---	Stone masonry	1903	24,313
Kaukauna first lock ²	23.6	Kaukauna	---	35.1	144.4	11.0	6.9	6.0	Rock	---	Stone masonry	1883	38,704
Kaukauna dam ²	24.0	Kaukauna	---	---	---	---	---	---	Rock	Fixed ^{3,4}	Concrete	1931	123,763
Kaukauna guard lock	24.0	Kaukauna	---	40.0	---	---	9.4	---	Rock	---	Stone masonry	1891	12,630
Little Chute combined lock:													
Lower	24.4	Little Chute	1	35.4	146.5	10.9	6.0	8.6	Rock	---	Stone masonry	1879	102,304
Upper	25.4	Little Chute	1	36.3	144.1	10.6	7.6	6.0	Hardpan	---	Stone masonry	1879	---
Little Chute second lock ²	26.4	Little Chute	---	35.0	144.2	13.8	8.0	6.1	Rock	---	Stone masonry	1881	48,555
Little Chute first (guard) lock ¹	26.5	Little Chute	---	35.4	---	---	6.6	---	Rock	---	Stone masonry	1904	7,817 ⁵
Little Chute dam ²	26.6	Little Chute	---	---	---	---	---	---	Rock	Fixed ^{3,4}	Concrete	1932	82,554
Cedars lock ²	27.3	Little Chute	1	35.0	144.0	9.8	6.8	7.3	Rock	---	Stone masonry	1888	34,972
Cedars dam ³	27.4	Little Chute	1	---	---	---	---	---	Rock	Fixed ^{3,4}	Concrete	1933	84,973
Appleton fourth lock ²	30.7	Appleton	1	35.0	144.0	7.6	8.1	7.9	Rock	---	Stone masonry	1907	40,893
Appleton lower dam ²	30.9	Appleton	1	---	---	---	---	---	Rock	Fixed ^{3,4}	Concrete	1934	73,903
Appleton third lock ²	31.3	Appleton	---	35.0	144.0	8.7	6.0	8.6	Rock	---	Stone masonry	1900	32,238
Appleton second lock ²	31.6	Appleton	---	35.1	144.6	9.6	6.9	6.0	Clay	---	Stone masonry	1901	22,940
Appleton first lock ²	31.9	Appleton	---	35.0	144.7	10.0	6.6	6.0	Rock	---	Stone masonry	1884	36,004
Appleton upper dam	32.2	Appleton	---	---	---	---	---	---	Rock	Fixed ³	Concrete	1940	151,558
Menasha lock ²	37.0	Menasha	---	35.4	144.0	8.5	7.2	8.0	Clay	---	Composite	1899	19,326 ⁵
Menasha dam ₂	37.8	Menasha	---	---	---	---	---	---	Hardpan	Fixed ³	Concrete	1937	84,686

¹Depth shown is on breast wall, which is controlling depth for upper pool.

²Original structure built prior to assumption of control by United States on Sep. 18, 1872.

³Provided with sluices.

⁴Flash boards used.

⁵Partially rebuilt.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 21-J RECONNAISSANCE & CONDITION SURVEYS

Name of Project	Date Survey Conducted
ALGOMA HARBOR, WI.....	JUNE 2003
AUSABLE HARBOR, MI	SEPTEMBER 2003
BAYFIELD HARBOR, WI.....	JUNE 2003
BELLE RIVER HARBOR, MI	JUNE 2003
BIG BAY HARBOR, MI	SEPTEMBER 2003
CASEVILLE HARBOR, MI.....	JULY 2003
CORNUCOPIA HARBOR, WI.....	JUNE 2003
EAGLE HARBOR, MI.....	JULY 2003
GRAND MARAIS HARBOR, MN	MAY 2003
GRAYS REEF PASSAGE, MI	JUNE 2003
HAMMOND BAY HARBOR, MI.....	JUNE 2003
HARBOR BEACH HARBOR, MI.....	SEPTEMBER 2003
LA POINTE HARBOR, WI.....	JUNE 2003
LES CHENEAUX ISLAND CHANNEL, MI.....	JUNE 2003
PINE RIVER HARBOR, MI.....	JUNE 2003
TAWAS BAY HARBOR, MI	SEPTEMBER 2003
WHITEFISH POINT HARBOR, MI.....	MAY 2003

DETROIT, MI DISTRICT

TABLE 21-K NAVIGATION WORK UNDER SPECIAL AUTHORIZATION

PROJECT/STUDY/LOCATION	STATUS	Federal Costs for FY 03	Non-Federal Costs for FY 03	Total Costs for FY 03
Navigation activities pursuant to Section 107. Public Law 86-645 (pre-authorization).				
Navigation activities pursuant to Section 107 of the River and Harbor Act of 1960, as amended.				
Coordination Account	Coordination	8,977	---	8,977
City of Mackinac Island Harbor Breakwater, MI	Feasibility Activities	4,282	---	4,282
Detroit River Navigation Improvement, MI	Feasibility Activities	9,554	---	9,554
Duluth (McQuade Road) Harbor, MN	Plans and Specifications	59,421	---	59,421
Escanaba, MI	Feasibility Activities	22,878	---	22,878
Grand Portage Harbor, MN	Feasibility Activities	23,864	---	23,864
Harbor of Refuge, Big Suamico, MI	Feasibility Activities	1,000	---	1,000
Knife Harbor, MN	Feasibility Activities	23,577	---	23,577
Lakeshore State Park, Milwaukee, WI	Feasibility Activities	40,818	---	40,818
Ontonagon River, MI	Feasibility Activities	0	---	0
Rouge River, MI	Feasibility Activities	10,002	---	10,002
Saxon Harbor, WI	Feasibility Activities	59,816	---	59,816
Taconite Harbor, MN	Construction	138	-288	-150
Two Harbors, MN	Plans and Specifications	<u>25,626</u>	<u>---</u>	<u>25,626</u>
Total		289,953	-288	289,665

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 21-L

EMERGENCY SHORE PROTECTION

PROJECT/STUDY/LOCATION	STATUS	Federal Costs for FY 03	Non-Federal Costs for FY 03	Total Costs for FY 03
Authority for emergency streambank and shoreline protection of public works and non-profit services (Section 14 Flood Control Act of 1946, as amended).				
Coordination Account	Coordination	19,515	---	19,515
Belle Isle Park, City of Detroit, MI	Planning and Design Analysis	13,205	---	13,205
Belle Isle South Shore, Detroit, MI	Planning and Design Analysis	24,402	---	24,402
Big Rapids, MI	Planning and Design Analysis	47,666	---	47,666
Combined Sewer Outfall #6, South Bend, MI	Planning and Design Analysis	6,820	---	6,820
Detroit River Shoreline, MI	Planning and Design Analysis	44,425	---	44,425
Gibraltar, MI	Planning and Design Analysis	16,202	---	16,202
Grand River (NOWS) Grand Haven, MI	Planning and Design Analysis	18,219	---	18,219
Kenosha Harbor, Retaining Wall, WI	Planning and Design Analysis	21,791	---	21,791
Kinnickinnic River, Milwaukee County, WI	Planning and Design Analysis	10,990	---	10,990
Leeper Park Island Wall, South Bend, IN	Construction	58,592	0	58,592
Marquette Lakeshore Boulevard, MI	Planning and Design Analysis	1,272	---	1,272
Maumee River, Fort Wayne, IN	Feasibility Activities	118	---	118
Mosel, Sheboygan County, WI	Planning and Design Analysis	214,005	---	214,005
North Shore Drive, City of South Bend, IN	Planning and Design Analysis	4,528	---	4,528
Rouge River, City of Southfield, MI	Construction	0	0	0
St. Joseph River, Niles, MI	Planning and Design Analysis	0	---	0
St. Joseph River, South Bend, IN	Planning and Design Analysis	77,178	---	77,178
Thieme Drive, Ft. Wayne, IN	Planning and Design Analysis	38,194	---	38,194
Underwood Creek, Milwaukee County, WI	Planning and Design Analysis	926	---	926
Water Resources Institute Lake Michigan, MI	Planning and Design Analysis	2,897	-2,897	0
Water Treatment Plant, St. Joseph, MI	Planning and Design Analysis	29,376	---	29,376
Total		650,321	-2,897	647,424

DETROIT, MI DISTRICT

TABLE 21-M BEACH EROSION WORK UNDER SPECIAL AUTHORIZATION

PROJECT/STUDY/LOCATION	STATUS	Federal Costs for FY 03	Non-Federal Costs for FY 03	Total Costs for FY 03
Beach Erosion activities pursuant to Section 103 of the 1962 River and Harbor Act.				
Bay Point Peninsula, City of Luna Pier	Feasibility Activities	40,303	---	40,303
Lakewalk Park, Duluth, MN	Feasibility Activities	<u>6,417</u>	---	<u>6,417</u>
Total		46,720	---	46,720

Shoreline Erosion Control Development and Demonstration Activities pursuant to Section 227 of the Water Resources Development Act of 1966.

Shoreline Erosion Control Development & Demonstration Prgm		161,508	---	161,508
---	--	---------	-----	---------

TABLE 21-N MITIGATION OF SHORE DAMAGES

PROJECT/STUDY/LOCATION	STATUS	Federal Costs for FY 03	Non-Federal Costs for FY 03	Total Costs for FY 03
Mitigation of Shore Damages pursuant to Section 111 of the River and Harbor Act of 1968				
Saugatuck Harbor, MI	Feasibility Activities	1,431	---	1431
Grand River (NOWS) Grand Haven, MI	Feasibility Activities	<u>12,500</u>	---	<u>12,500</u>
Total		13,931		13,931

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 21-O PROJECT MODIFICATION FOR IMPROVING THE QUALITY OF THE ENVIRONMENT

PROJECT/STUDY/LOCATION	STATUS	Federal Costs for FY 03	Non-Federal Costs for FY 03	Total Costs for FY 03
Project modification activities pursuant to Section 1135(b) of the Water Resources Development Act of 1986, as amended				
Coordination Account	Coordination	15,066	---	15,066
AuGres River, Arenac County, MI	Preliminary Restoration Plan	9,716	---	9,716
Bad River, Ashland County, WI	Planning and Design Analysis	51,397	---	51,397
Black Mallard Creek, MI	Planning and Design Analysis	36,562	---	36,562
Carp Lake River, MI	Planning and Design Analysis	114,215	---	114,215
Cheboygan River, Cheboygan County, MI	Preliminary Restoration Plan	9,740	---	9,740
Flint River & Swartz Creek, Flint, MI	Preliminary Restoration Plan	3,841	---	3,841
Harlow Creek, Marquette County, MI	Preliminary Restoration Plan	10,060	---	10,060
Hennepin Marsh Grosse Ile, MI	Feasibility Activities	28,867	---	28,867
Kid's Creek, Boardman River, MI	Planning and Design Analysis	110,418	---	110,418
Lake Poygan, WI	Feasibility Activities	191,182	---	191,182
Lower Rouge, Rotunda DR and 94 MI	Feasibility Activities	59,665	---	59,665
Rapid River, MI	Planning and Design Analysis	21,754	---	21,754
Rifle River, Arenac County, MI	Preliminary Restoration Plan	9,370	---	9,370
Rouge River Oxbow, Wayne Co., MI	Preliminary Restoration Plan	11,081	---	11,081
SB Galien River, Berrien County, MI	Planning and Design Analysis	164,168	---	164,168
Schmidt Creek, MI	Planning and Design Analysis	29,164	---	29,164
Sea Lamprey Barrier, Manistique, MI	Preliminary Restoration Plan	4,746	---	4,746
Sea Lamprey Barrier, Paw Paw Lake, MI	Planning and Design Analysis	245,405	---	245,405
Sea Lamprey Trap, St. Mary's River, MI	Preliminary Restoration Plan	7,370	---	7,370
St. Mary's River Restoration, Sault Ste. Marie, MI	Preliminary Restoration Plan	8,440	---	8,440
Sucker River, Alger County, MI	Preliminary Restoration Plan	10,002	---	10,002
Trail Creek, LaPorte County, IN	Planning and Design Analysis	159,249	---	159,249
Upper Rouge, MI Ave to Rotunda Dr., MI	Feasibility Activities	63,400	---	63,400
Total		1,374,878	---	1,374,878

DETROIT, MI DISTRICT

TABLE 21-O PROJECT MODIFICATION FOR IMPROVING THE QUALITY OF THE ENVIRONMENT

PROJECT/STUDY/LOCATION	STATUS	Federal Costs for FY 03	Non-Federal Costs for FY 03	Total Costs for FY 03
Aquatic Ecosystem Restoration – Projects for aquatic ecosystem restoration and protection projects, for the purpose of improving the environment pursuant to Section 206 of the Water Resources Development Act of 1996.				
Coordination Account	Coordination	18,148	---	18,148
Belle Isle Piers, Detroit, MI	Feasibility Activities	30,379	---	30,379
Berrien County, Watervliet Dam, MI	Preliminary Restoration Plan	3,572	---	3,572
Centerville Creek, Cleveland, WI	Preliminary Restoration Plan	8,616	---	8,616
Cranbrook Institute, Bloomfield Hills, MI	Preliminary Restoration Plan	1,040	---	1,040
C.K. Eddy Creek, West Branch Township	Preliminary Restoration Plan	3,867	---	3,867
Clearwater Lake, MI	Preliminary Restoration Plan	3,792	---	3,792
Concordia University, WI	Preliminary Restoration Plan	4,646	---	4,646
Detroit River, City of Trenton, MI	Preliminary Restoration Plan	5,225	---	5,225
Dowagiac River, Cassopolis, MI	Preliminary Restoration Plan	8,922	---	8,922
Grayling Millpond Dam, Crawford County	Preliminary Restoration Plan	8,882	---	8,882
Homer Lake, St. Joseph River	Preliminary Restoration Plan	9,897	---	9,897
Houghton Lake, MI	Preliminary Restoration Plan	3,310	---	3,310
Kalamazoo County, MI	Feasibility Activities	13,284	---	13,284
Kinnickinnic River, WI	Preliminary Restoration Plan	7,109	---	7,109
Koontz Lake, IN	Plans and Specifications	14,189	---	14,189
Lake St. Clair, Metro Beach, MI		385.00	---	385.00
Lower Menomonee River Valley, Milwaukee, WI	Preliminary Restoration Plan	7,902	---	7,902
Mallett's Creek, Wastewaw County	Preliminary Restoration Plan	12,279	---	12,279
Marion Mill Pond, Village of Marion, Osceola	Preliminary Restoration Plan	10,585	---	10,585
Menomonee, WI	Feasibility Activities	30,105	---	30,105
Oak Creek, WI	Planning and Design Analysis	37,433	0	37,433
Otsego Lake, MI	Preliminary Restoration Plan	3,310	---	3,310
Pike River, WI	Preliminary Restoration Plan	186	---	186
Remy Chandler Drain Clinton/Ingram Co	Preliminary Restoration Plan	9,891	---	9,891
Secord and Smallwood Lakes, Gladwin Co. MI	Preliminary Restoration Plan	9,290	---	9,290
South Bend Dam, St. Joseph County, IN	Preliminary Restoration Plan	12,242	---	12,242
South Bend Dam, St. Mary's River, South		-960	---	-960
St. Marys River Restoration, Ste Sault Marie	Preliminary Restoration Plan	0	---	0
Trinity Creek, City of Mequon, WI	Preliminary Restoration Plan	1,000	---	1,000
Underwood Creek, Wauwatosa, WI	Preliminary Restoration Plan	4,389	---	4,389
Wolf River, WI	Planning and Design Analysis	1,000	---	1,000
Total		283,915	0	283,915

TABLE 21-O **PROJECT MODIFICATION FOR IMPROVING THE QUALITY OF THE ENVIRONMENT**

PROJECT/STUDY/LOCATION	STATUS	Federal Costs for FY 03	Non-Federal Costs for FY 03	Total Costs for FY 03
Aquatic plant control activities pursuant to Section 302 of the River and Harbor Act of 1965 (PL 89-298).				
Aquatic Plant Control		138,328	---	138,328
Total		138,328	---	138,328
Environmental infrastructure pursuant to Section 219e of the Water Resources Development Act of 1999, as amended				
Genesee County Drain, Genesee County, MI	Design Review	65,242	28,800	94,042
Nagaunee, MI	Design Review	87,853	43,971	131,824
Twelve Towns Darin Retention Treatment	Design Review	167,886	58,031	225,917
Total		320,981	130,802	451,783
Environmental infrastructure pursuant to Section 569 of the Water Resources Development Act of 1999, as amended.				
Northeastern Minnesota, MN (MV&LR)	Various Stages	893,208	---	893,208
Northern Wisconsin Env Assistance	Various Stages	53,698	---	53,698
Total		946,906	---	946,906
Ecosystem Restoration – Section 204 beneficial use of dredged material in connection with dredging. Projects in connection with dredging use of dredged material activities pursuant to Section 204 of Water Resources Development Act of 1992, as amended.				
Cat Island Chain, Brown County, WI	Feasibility Activities	72,941	---	72,941
21 st Avenue, West Channel, Duluth, MN	Feasibility Activities	0	---	0
Total		72,941	---	72,941

DETROIT, MI DISTRICT

TABLE 21-P FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

PROJECT/STUDY/LOCATION	STATUS	Federal Costs for FY 03	Non-Federal Costs for FY 03	Total Costs for FY 03
Flood control activities pursuant to Section 205 of the 1948 Flood Control Act, as amended.				
Coordination Account	Coordination	4,957	---	4,957
Cass River, Spaulding Township, MI	Feasibility Activities	11,222	---	11,222
Detroit Beach, Lake Erie, Frenchtown Twp., MI	Feasibility Activities	7,213	---	7,213
Oak Creek, Milwaukee County, WI	Feasibility Activities	81	---	81
Red Mill Pond Dam, LaPorte, IN	Feasibility Activities	4776	---	4776
Root River, Milwaukee County, WI	Feasibility Activities	33,162	---	33,162
Underwood Creek, Village of Elm Grove, WI	Feasibility Activities	21,578	---	21,578
Total		82,989	---	82,989

CHICAGO, ILLINOIS, DISTRICT

The district comprises Cook, McHenry, Lake, Kane, DuPage, and Will Counties in Illinois, and Lake and Porter Counties in Indiana, and a portion of La Porte County along Lake Michigan in Indiana.

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Flood Control

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Navigation

1. BURNS WATERWAY HARBOR, IN

Location. Northwestern Indiana on the southern shore of Lake Michigan in Porter County, 28 miles southeast of Chicago Harbor. (See NOAA Nautical Chart Numbers 14905 and 14926.)

Previous Projects. None.

Existing Project. Provides for (a) a rubblemound north breakwater 4,630 feet long and a rubblemound breakwater west arm 1,200 feet long, for a total breakwater length of 5,830 feet; (b) an approach channel 30 feet deep and 400 feet wide; (c) an outer harbor 28 feet deep; (d) an east harbor arm 27 feet deep and 620 feet wide; and (e) a west harbor arm 27 feet deep and 620 feet wide. The project was authorized by the River and Harbor Act of October 27, 1965 (Public Law 89-298; House Document Number 160, 88th Congress, 1st Session). The authorizing act also provided the Secretary of the Army with the authority to reimburse the State of Indiana for expenditure of funds used to construct such portions of the project as approved by the Chief of Engineers and constructed under the supervision of the Chief of Engineers (See tables 22-B,C).

Local Cooperation. Fully complied with.

Terminal Facilities. Eleven berths are available at the facilities owned and administered by the Indiana Port Commission. One berth, committed to grain, is located on the outer harbor. Four berths on the East Harbor Arm are dedicated to handling dry and liquid bulk commodities. The East Harbor Arm also includes a small-boat harbor designed to accommodate working tugs for vessel assistance and barge movement. On the West Arm there are six berths. Although one berth is available for dry bulk cargoes, these berths are primarily used for the shipment and receipt of general cargo. Additionally, the Indiana Port Commission, through a lease, administers the west side of the West Harbor Arm for barge fleeting. The remaining available harbor berthing on the east side of the East Harbor Arm is privately owned.

Operations and Results During Period. Study of the effectiveness of the underwater reef was performed at a cost of \$232,007 by other Corps of Engineers. Breakwater maintenance costs were \$253,291 for hired labor and other in-house costs,

\$548,697 for stone supply contract, \$679,568 by other Corps of Engineers, and \$2,793,544 by construction contract. Supervision and administration cost was \$163,014. Engineering and design costs were \$109,187 for hired labor and other in-house services. Dredging and placement of concrete mats to prevent prop wash shoaling was completed at costs of \$278,726 by other Corps of Engineers, \$109,295 for supply contracts, \$52,630 for hired labor. Engineering and design cost for this effort was \$26,577 by hired labor, \$21,696 by AE contract and \$2,390 for supervision and administration. Project operation costs were \$85,254 for hired labor and other in-house services.

Condition at End of Fiscal Year. The existing project is complete. Total costs to September 30, 2003 were \$37,636,740 of which \$13,599,900 was for new work (\$13,584,000 federal and \$15,900 non-federal) and \$24,036,840 (\$23,928,478 federal and \$108,362 non-federal) for was maintenance.

2. BURNS WATERWAY SBH, IN

Location. Northwestern Indiana on the southeast shore of Lake Michigan in Porter County, at the mouth of the Burns Waterway, approximately 27 miles southeast of Chicago Harbor. (See NOAA Nautical Chart Numbers 14905 and 14926.)

Previous Projects. None

Existing Project. Provides for (a) a rubblemound west breakwater 1,043 feet long; (b) a rubblemound north breakwater 678 feet long; and (c) channel improvements of 5,200 linear feet with 145,000 cubic yards of dredged material used for beach nourishment (See table 22-C).

Local Cooperation. Fully complied with.

Terminal Facilities. There are several marinas located along Burns Waterway and Burns Ditch. The principal marina, which is owned and operated jointly by the City of Portage and the Little Calumet River Basin Commission, was built in 1996 to comply with the local cooperation agreement. The commodities handled at this harbor are fresh fish caught as a result of charter boat fishing.

Operations and Results During Period. Breakwater maintenance was completed at cost of \$290,893 by other Corps of Engineers, \$335,098 for stone supply and other contract services, \$8,376 for supervision and administration, \$10,219 for

CHICAGO, ILLINOIS DISTRICT

engineering and design by hired labor, and \$75,082 for hired labor and other in-house services.

Condition at End of Fiscal Year. Total costs of the existing project to September 30, 2003 were \$7,834,479 of which \$3,770,558 was for new work (\$2,000,000 federal and \$1,770,558 non-federal), and \$4,063,921 for maintenance (federal).

3. BURNS WATERWAY HARBOR (MAJOR REHAB), IN

Location. The project is located in northwestern Indiana on the southern shore of Lake Michigan in Porter County.

Existing Project. The rehabilitation project consists of constructing a segmented reef breakwater system, 75 feet lakeward of the northern section of the existing rubblemound breakwater. The project provides for seven reef segments, one 1,575 feet long and six 375 feet long with 25 feet spacing between segments

Local Cooperation. None required.

Operations and Results During the Period. New Work: Following construction completion in 1998, project closeout was completed in 1999.

Condition at the End of Fiscal Year. The construction contract was financially completed. The total cost of the existing project to September 30, 2003 was \$13,384,161.

4. CALUMET HARBOR AND RIVER, IL and IN

Location. Northeastern Illinois, on the southwest shore of Lake Michigan in Cook County, 15 miles south of Chicago Harbor, within the corporate limits of the City of Chicago, except for breakwaters, and approach channel and an anchorage area which are in Indiana. (See NOAA Nautical Chart Numbers 14926 and 14929.)

Previous Projects. For details see page 1400 of Annual Report for 1962.

Existing Project. Provides for (a) a stone-filled timber crib breakwater 6,714 feet long; (b) a stone-filled double-row steel sheet pile detached breakwater 5,007 feet long; (c) an approach channel 29 feet deep and 3,200 feet wide; (d) an outer harbor anchorage area 28 feet deep and 3,000 feet wide; (e) an entrance channel 27 feet deep and 230 to 290 feet wide; (f) a

channel in the Calumet River 27 feet deep and at least 200 feet wide to the north side of 130th Street; (g) three turning basins designated as numbers, 1, 3, and 5; and (h) a channel extending into Lake Calumet at a width of about 1,000 feet. The project was authorized by the River and Harbor Acts of March 3, 1899, June 13, 1902, August 30, 1935, July 14, 1960, October 23, 1962, and October 27, 1965 (See tables 22-B,C).

Local Cooperation. Fully complied with.

Terminal Facilities. Thirty six docks, wharves, and terminals are available. The Illinois International Port District owns four wharves, two grain elevators, one dock, and one terminal. The United States Government owns one stone dock. The most important cargoes handled are general cargo, grain, iron ore and concentrates, coal, and cement.

Operations and Results During Period.

Sediment surveys and studies were performed by hired labor at a cost of \$8,268 and by other Corps of Engineers for \$29,998. Costs for routine operation and monitoring of the CDF were \$110,557 for hired labor and other in-house services and \$23,148 by contract. Costs for breakwater maintenance were \$118,970 for hired labor, \$161,180 by other Corps of Engineers, \$874,166 for supply and service contracts, \$10,380 for engineering and design, and \$6,153 supervision and administration. Dredging costs for the river were \$73,957 for environmental compliance by hired labor, \$212,787 for engineering and design, \$605,120 by contract, \$30,947 for supervision and administration, \$5,000 by other Corps of Engineers and \$89,663 for hired labor and other in-house. Facilities maintenance costs were \$13,820 by hired labor. Work on the stone dock land swap costs were \$144,763 for engineering and design, \$18,962 by AE contract (soil assessment), \$68,450 for boundary survey contract, \$72,405 by other Corps of Engineers and \$40,776 hired labor. A Dredged Material Management Plan was initiated for \$5,106 by hired labor. Project management and operation costs were \$125,754.

Condition at End of Fiscal Year. The existing project is 100 percent complete. Total costs of the existing project to September 30, 2003, were \$77,413,568 of which \$22,578,567 was for new work (\$19,541,964 federal funds and \$3,036,603 public works funds), \$49,407,000 for maintenance (\$48,570,333 federal and \$836,667 non-federal funds) and \$5,428,001 federal funds for rehabilitation.

5. CHICAGO HARBOR, IL

Location. Northeastern Illinois on the southwest shore of Lake Michigan in Cook County, within the corporate limits of the City of Chicago. (See NOAA Nautical Chart Numbers 14926, 14927, and 14928.)

Previous Projects. See page 1396 of Annual Report for 1962.

Existing Project. Provides for (a) a stone-filled timber crib shore and extension breakwater 2,250 feet long; (b) a stone-filled timber crib exterior breakwater 5,421 feet long; (c) a rubblemound and stone-filled concrete caisson southerly extension to the exterior breakwater 4,944 feet long, exclusive of a 582-foot entrance gap enclosing an outer basin of about 970 acres; (d) a stone-filled timber crib north pier 960 feet long; (e) a stone-filled timber crib north inner breakwater 4,034 feet long with a 304-foot shore return and a 754-foot gap; (f) a stone-filled timber crib south inner breakwater 2,544 feet long, enclosing an inner basin of approximately 224 acres; (g) a lake approach channel 29 feet deep and 800 feet wide; (h) a channel and maneuver area inside the exterior breakwater and southerly extension breakwater 28 feet deep with a maximum width of 1,300 feet; (i) an entrance channel 21 feet deep and (j) the Chicago Harbor Lock. The Chicago Lock was constructed in 1938 by the Metropolitan Water Reclamation District of Greater Chicago. The deep-draft lock is 600 feet long, 80 feet wide, and 23 feet deep over the sill and is of steel cellular design.

The project was authorized by the River and Harbor Acts of July 11, 1870, June 14, 1880, March 3, 1899, July 25, 1912, March 2, 1919 and October 23, 1962 (See table 22-B).

Lock operation and maintenance responsibilities, in the interest of navigation, were transferred to the Federal Government pursuant to Public Law 98-63 approved July 30, 1983; Section 107 of the Public 97-88; and the Memorandum of Agreement between the Department of Army and the Metropolitan Water Reclamation District of Greater Chicago.

Local Cooperation. Fully complied with.

Terminal Facilities. There are five docks with 18 berths for passenger excursion boats and 10 berths for visiting large vessels. The most important cargoes handled through the lock are petroleum products, in addition to sugar and non-metallic minerals.

Operations and Results During Period. The lock was operated by contract at a cost of \$864,082. Other costs associated with the lock operation were \$181,121 for supervision and administration, hired labor and other in-house services and \$15,749 by other Corps of Engineers. Bulkhead storage lease was \$16,628. Data collection and evaluation of the wave gage was conducted by other Corps at a cost of \$124,304. Lock maintenance costs were \$43,131 by hired labor. Work on lock property improvements (East wall) was conducted at costs of \$55,374 by AE contract, \$62,509 for in-house E&D and \$23,053 for hired labor. Breakwater maintenance costs were \$91,659 for hired labor and \$243,070 by other Corps. Work on the lock major rehabilitation, west gate design, was performed at \$239,338 by hired labor E&D. Lock Control House design was initiated by hired labor for \$6,713. Breakwater major rehabilitation report was completed at costs of \$112,367 by AE contract, \$26,701 S&A, \$39,985 by other Corps and \$37,316 for hired labor and other in-house services. Project management costs were \$83,144.

Condition at End of Fiscal Year. The existing project is complete. Total costs to September 30, 2003 were \$62,208,501 of which \$4,788,827 was for new work, \$55,933,074 was for maintenance, \$1,326,600 for rehabilitation and \$160,000 Harbor and Dams funds.

6. CHICAGO RIVER, IL

Location. Northeastern Illinois, in Cook County within the corporate limits of the City of Chicago. (See NOAA Nautical Chart Numbers 14926, 14927 and 14928.)

Previous Projects. See page 1394 of Annual Report for 1962.

Existing Project. Provides for (a) a channel 21 feet deep in the main river from its mouth at Rush Street to the junction of the North and South Branches (0.7 miles); (b) a channel 21 feet deep in the North Branch from the junction to North Avenue (2.22 miles); (c) a channel 21 feet deep on the North Branch Canal (1.04 miles); (d) a 21-foot deep North Branch Turning Basin just south of North Avenue; and (e) a channel 9 feet deep in the North Branch from North Avenue to Addison Street (authorized but not constructed). The project was authorized by the River and Harbor Acts of March 3, 1899, June 13, 1902, March 2, 1907, and July 24, 1946 (See tables 22-B, C). The portion of the project authorized by

CHICAGO, ILLINOIS DISTRICT

the River and Harbor Act of 1946 is presently being restudied to confirm economic feasibility.

Local Cooperation. Fully complied with for completed modifications. The River and Harbor Act of July 24, 1946, which provided for the improvement of the channel, is subject to the condition that local interests furnish assurances that they will hold the United States government free from damages which may result from construction and maintenance of the improvement. Requirement has not been complied with.

Terminal Facilities. Six docks are available. The most important cargoes handled are sand, gravel and crushed rock, non-metallic minerals and scrap iron.

Operations and Results During Period. Water control activities were performed by hired labor at a cost of \$87,965, by other Corps of Engineers at a cost of \$16,456 and by other federal agency at a cost of \$156,880. Program management costs were \$69,139.

Condition at End of Fiscal Year. The project is complete except for dredging the channel between North Avenue and Addison Street as authorized by the 1946 River Harbor Act. Channel maintenance for the reach from Clark Street to head of navigation has been deferred pending location and approval of suitable dredged material disposal site. Head of navigation for deep-draft vessels is North Avenue, 5.97 miles from the Michigan Avenue bridge. Total costs of the existing project to September 30, 2003 were \$18,939,526 of which \$1,500,565 was for new work and \$17,438,961 was for maintenance.

7. INDIANA HARBOR, IN

Location. Northwestern Indiana, on the southwest shore of Lake Michigan in Lake County, 19 miles southeast of Chicago Harbor. (See NOAA Nautical Chart Numbers 14926 and 14929.)

Previous Projects. For details see page 1943 of Annual Report for 1915, and page 1520 of Annual Report for 1938.

Existing Project. Provides for (a) a northerly rubblemound breakwater 1,120 feet long; (b) an easterly concrete capped caisson breakwater 201 feet long with a rubblemound extension 2,324 feet long; (c) a lake approach channel 29 feet deep and 800 feet wide; (d) an anchorage and maneuver basin 28 feet deep; (e) a main canal entrance channel 27 feet deep and 280 feet wide; (f) a main canal 22 feet deep; (g) a

turning basin 22 feet deep; (h) the Forks Turning Basin 22 feet deep; (i) the Lake George Branch 22 feet deep; and (j) the Calumet River Branch 22 feet deep. The project was authorized by the River and Harbor Acts of March 4, 1913, March 2, 1919, March 20, 1922, July 3, 1930, August 30, 1935, August 28, 1937, and July 14, 1960 (See tables 22-B, C).

Local Cooperation. Substantially complied with. See FY 1986 Annual Report for full requirements.

Terminal Facilities. Fifteen docks and wharves are available. Six docks handle iron ore and limestone. Six docks are for handling petroleum products and three docks for handling gypsum, scrap metal and steel, and bulk products. However, not all docks are presently being used for the shipment or receipt of waterborne commodities.

Operations and Results During Period. Project operation costs were \$62,219.

Condition at End of Fiscal year. The existing project is complete. Total costs of the existing project to September 30, 2003 were \$19,905,208 of which \$4,909,648 (\$4,897,148 federal and \$12,500 non-federal contributed funds) was for new work and \$14,995,560 (federal) for maintenance. Channel maintenance has been deferred pending construction of suitable Confined Disposal Facility.

8. INDIANA HARBOR AND CANAL CONFINED DISPOSAL FACILITY (CDF), IN

Location. The navigation project is located on the southwestern shore of Lake Michigan within the City of East Chicago, Lake County, Indiana, 4-1/2 miles east of the Indiana-Illinois state line and 17 miles from downtown Chicago, Illinois. A CDF will be constructed at the Energy Cooperative Incorporated (ECI) site in East Chicago, Illinois.

Existing Project. IHC is an authorized Federal navigation project with an entrance channel and outer harbor protected by breakwaters, and an inner harbor which includes the Indiana Harbor Canal and its two branches, the Lake George Branch, which extends west for a distance of 6,800 feet, and the Calumet River Branch which extends to the south for about 2 miles where it joins the Grand Calumet River. The harbor has not been dredged since 1972, when the United States Environmental Protection Agency determined that disposal in Lake Michigan was no longer acceptable due to the polluted character of the

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harbor sediments.

A 4.8 million cubic yards capacity CDF will be constructed on the 164 acres of land adjacent to the Lake George Branch of the IHC, formerly occupied by an oil refinery owned by the Atlantic Richfield Company and subsequently acquired by ECI. The ECI property currently has open Resource Conservation and Recovery Act (RCRA) status due to the contaminated soil and groundwater that exists on the site. Use of this site for the CDF is contingent upon the construction of specific RCRA closure and corrective action features which will be integral aspects of the CDF construction. The elements of the CDF include construction of an impervious cutoff wall built around the 11,000 linear feet perimeter of the site to approximately 30-35 feet depths, tied into the clay layer below; groundwater monitoring and extraction wells and pumps to maintain an inward gradient and prevent any contaminated groundwater from leaving the site; an air monitoring system; an on-site water treatment facility to treat groundwater pumpage, water from dried dredged materials and precipitation falling on the site; dikes built in two 15 foot stages, with an impervious clay layer on the interior of the dikes; a rehandling area; and a cap constructed using 3 feet of clay, 6 inches of sand, 2 feet of clean fill and 6 inches top soil with grass cover. This cap configuration, used for both the CDF and the buffer areas, will satisfy the RCRA closure requirement for the ECI site.

Local Cooperation. The local sponsor is the East Chicago Waterway Management District (ECWMD). The local sponsor is required to provide all lands, easements and rights-of-way; provide all required relocations; and hold and save the United States government free from any damages due to construction or operation of the project. In addition, the ECWMD is required to pay a cash contribution to bring the total non-federal share to twenty-five percent of the costs allocated to general navigation facilities during construction and pay 50 percent of the costs of incremental maintenance. The local sponsor is also required to reimburse an additional 10 percent of the costs of the general navigation facilities allocated to commercial navigation within a period of 30 years following completion of construction, as partially reduced by a credit allowed for the value of lands, easements, rights of way, relocations, and dredged or excavated material disposal provided for commercial navigation. In addition, the ECWMD is required to pay 100 percent of the costs allocated to general navigation facilities during construction for the local service facilities

(non-federal berthing areas) and 100 percent of costs of incremental maintenance for the local service facilities. The Project Cooperation Agreement for the project was executed 7 August 2000.

Operations and Results During the Period.

Construction on Cutoff wall was continued along with engineering and design work. Total Real Estate costs were \$54,156 (\$47,503 non federal and \$6,653 federal). Total engineering and design costs were \$2,619,206 (\$2,619,206 federal and \$0 nonfederal). Total Construction management cost was \$303,293 (\$303,293 federal and \$0 nonfederal). Total outreach cost was \$83,687 (\$83,687 federal). Total Air monitoring costs were \$1,203,111 (\$953,111 federal, \$250,000 nonfederal). Total cutoff wall construction was \$4,306,233 (\$1,976,202 federal \$2,330,032 nonfederal). Total cost of the project in FY03 was \$8,569,687 (\$5,942,152 was federal and \$2,627,535 non federal.)

Condition at the End of Fiscal Year. Total cost of the existing project to September 30, 2003 was \$17,250,311 (\$13,895,283 federal and \$3,355,028 non federal.)

9. LAKE MICHIGAN DIVERSION

Location. Northeastern Illinois on the southwest shore of Lake Michigan in Cook County, within the corporate limits of the City of Chicago. (See NOAA Nautical Chart Numbers 14926, 14927, and 14928.)

Previous Projects. See page 22-3 of Annual Report for 1988.

Operations and Results During Period.

Operations: Water accounting studies and preparation of reports were performed at costs of \$326,452 by hired labor and \$519,921 by other federal agency and \$356,939 by AE contract.

Condition at End of Fiscal Year. Total cost of the existing project to September 30, 2003 was \$8,467,520.

10. MICHIGAN CITY HARBOR, IN

Location. Northwestern Indiana, on the southeast shore of Lake Michigan in La Porte County, 38 miles southeast of Chicago Harbor. (See NOAA Nautical Chart Numbers 14905 and 14926.)

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Previous Projects. See page 1407 of Annual Report for 1992.

Existing Project. Provides for (a) a stone-filled timber crib detached breakwater 1,304 feet long; (b) a pile and steel sheeting west pier 835 feet long; (c) a stone-filled timber crib, pile and steel sheeting east pier 2,276 feet long; (d) a stone-filled timber crib east breakwater 1,000 feet long; (e) an entrance channel 18 feet deep and 425 feet wide; (f) a turning basin No. 1, 18 feet deep; (g) a channel in Trail Creek 18 feet deep; (h) an outer basin 12 feet deep in the northerly portion and 8 feet deep in the southerly portion; and (i) a channel in Trail Creek 6 feet deep and 50 feet wide from turning basin No. 2 to the E Street bridge. The project was authorized by the River and Harbor Acts of March 3, 1899, March 3, 1905, January 21, 1927, August 30, 1935, and Section 107 of July 14, 1960, River and Harbor Acts, September 30, 1966 (See tables 22-B, C).

Local Cooperation. Fully complied with.

Terminal Facilities. There are several marinas in the lower mile of Trail Creek. The commodity handled at this harbor is fresh fish.

Operations and Results During Period. Confined Disposal Facility maintenance costs were \$23,329 by contract and \$975 by hired labor. The outer harbor was dredged with costs of \$116,849 for E&D, \$502,106 by contract, \$49,300 for S&A, and \$32,094 for hired labor and other in-house services. Contract closeout cost for Trail Creek dredging was \$13,466. Breakwater maintenance costs were \$371,034 by other Corps, \$187,251 for stone purchase contract and \$44,326 by hired labor. Engineering and design for east breakwater repair costs were \$226,249 by hired labor, and \$29,571 for CADD and other in-house services. A DMMP was continued at a cost of \$74,413 for hired labor. Project operation costs were \$61,787.

Condition at End of Fiscal Year. Total costs of existing project to September 30, 2003 were \$21,614,399, of which \$1,574,158 was for new work (\$1,543,646 federal and \$30,512 non-federal funds), \$18,421,571 for maintenance (\$18,366,571 federal and \$55,000 non-federal) and \$1,618,670 for rehabilitation (federal funds).

11. WAUKEGAN HARBOR, IL

Location. Northeastern Illinois on the west shore of Lake Michigan in Lake County, 38 miles north of

Chicago Harbor. (See NOAA Nautical Chart Numbers 14904 and 14905.)

Previous Projects. See page 1392 of Annual Report for 1962.

Existing Project. Provides for (a) a northerly stone-filled timber crib breakwater 588 feet long; (b) a stone-filled reinforced concrete caisson shore connection 270 feet long; (c) a stone-filled double-row steel sheeting shore connection 640 feet long; (d) a single-row steel sheeting shore connection 398 feet long; (e) a stone-filled timber crib north pier 998 feet long; (f) a single-row steel sheet piling north pier 444 feet long; (g) a steel piling revetment 632 feet long; (h) a stone-filled timber crib pier 1,399 feet long; (i) a stone-filled double-row pile and sheeting south pier 1,712 feet long; (j) an entrance channel 22 feet deep and 390 feet wide; (k) a channel between the piers 18 feet deep and 200 feet wide; (l) an inner basin 18 feet deep; and (m) an anchorage area in the southwest corner of the inner basin 8 feet deep. An authorized, but as yet unconstructed project modification provides for (a) an entrance channel 27 feet deep, (b) a channel between the piers 23 feet deep and (c) an inner basin and channel extension 23 feet deep. The project was authorized by the River and Harbor Acts of June 3, 1902, July 13, 1930, and March 2, 1945, and on December 17, 1970 by delegated authority under Section 201 of the Rivers and Harbor Act of October 27, 1965. (See tables 22-B, C). The portion of the project authorized by the 1970 modification is being restudied to confirm economic feasibility.

Local Cooperation. Fully complied with for completed portions. The Dec. 17, 1970 modification, which provides for modifications to the channel, is subject to the conditions that local interests furnish assurances that they will hold the United States government free from damages from construction and maintenance of the improvement and that certain lands, easements and rights-of-way be provided.

Terminal Facilities. Four docks are available. The commodities handled at this harbor are gypsum and building cement.

Operations and Results During Period. Outer harbor dredging was conducted at costs of \$118,470 for in-house E&D, \$284,151 by contract, \$33,758 for S&A and \$15,933 for sediment survey and \$44,429 by hired labor. South pier repair was initiated at costs of \$135,750 for in-house E&D, \$19,999 by contract, \$4,032 for supervision and administration and \$25,392 for hired labor and other in-house services.

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Work on the CDMP was performed by AE contract for \$79,650, and project operation cost was \$37,707.

Condition at End of Fiscal Year. The existing project is complete except for the 1970 modification, which is being restudied. Maintenance of the channel between the pier to the head of navigation has been deferred pending location, approval and probable construction of a suitable dredged material disposal site. Total costs of existing project to September 30, 2003 were \$20,304,605 of which \$823,026 was for new work and \$19,481,579 was for maintenance.

12. RECONNAISSANCE AND CONDITION SURVEYS

Condition surveys were performed at a cost of \$81,973.

13. NATIONAL EMERGENCY PREPAREDNESS

Fiscal Year 2003 costs for management and mobilization planning were \$27,019.

Alteration of Bridges

14. OTHER AUTHORIZED BRIDGE ALTERATIONS

See table 22-D.

Beach Erosion Control

15. CASINO BEACH, IL

Location. Casino Beach is located along the Lake Michigan shoreline at Jackson Park in Chicago, Illinois.

Existing Project. The Casino Beach project was authorized by Section 501 (a) of the 1986 Water Resources Development Act. The project consists of rehabilitating 1,800 feet of the Casino jetty by encasing the existing timber pile and stone structure in steel sheet piling and a concrete cap.

Local Cooperation. The local project sponsor is the Chicago Park District. The local sponsor is required to provide all lands, easements and rights-of-way; complete all necessary relocations; hold and save the United States free from damages due to construction or operation of the project; operate and maintain the completed project; and make cash contribution toward the cost of construction.

Operations and Results During Period. No new work.

Condition at End of Fiscal Year. Construction is complete. The total cost of the existing project to September 30, 2003 was \$2,465,517 federal and \$2,499,481 non-federal.

16. CHICAGO SHORELINE, IL

Location. The project area includes 9.2 miles of revetment reconstruction within 24 miles of publicly owned shoreline along Lake Michigan in Chicago, Illinois.

Existing Project. The Chicago Shoreline project is not authorized. The Federally supportable plan consists of constructing rubblemound revetments along 16,750 and 25,400 feet of the shoreline in the Lincoln Park and Burnham Park areas, respectively. Other project features include: revetments near the Adler Planetarium and at Meigs Field; a breakwater to protect the South Filtration Plant near 78th Street; and nourishment of a short reach of shoreline near Fullerton Avenue and 31st Street. The local sponsor prefers to substitute steel sheet pile step stone revetments (the locally preferred plan, or LPP) for the rubblemound revetments in the Lincoln and Burnham Park areas. They have agreed to pay the increased cost above the federally supportable plan. The LPP is the authorized plan.

Local Cooperation. This project has three separate Project Cooperation Agreements (PCA's). The first PCA, for the Reach 5 breakwater reconstruction, was executed on 28 April 1997. The second PCA, for Section 215 work, was executed on 7 August 1998, and covers construction of three portions of the project: 1,000 feet of revetment at Belmont Harbor in Reach 2, an 800 foot stretch of shoreline at 31st Street beach in Reach 4 (both of these are being constructed by the non-federal sponsor), and revetment reconstruction from 31st to 33rd streets in Reach 4 (Corps work). The project Cooperation Agreement for the balance of the project work was executed on 17 May 1999, implementing section 206 of WRDA 92 which allows the non-federal sponsor to perform a significant portion of the work. Design and construction of the project is well underway. Project construction is estimated to be completed in the year 2007.

The local sponsor is required to provide all lands, easements, and rights-of-way; complete all necessary relocations; hold and save the United States free from

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damages due to construction or operation of the project; operate and maintain the completed project; perform work for credit towards their cash contribution; and make cash contribution toward the cost of any outstanding balance.

Operations and Results During Period. The Corps performed construction work on at Belmont to Diversey North, Montrose North, Diversey to Fullerton, and 37th to 43rd Street. Engineering and design work was continued on various reaches. The non-federal sponsor provided cash in the amount of \$23,450,479. A total of \$37,609,977 was expended for construction (\$16,134,305 federal and \$21,475,672) Engineering and design costs were \$2,690,394 all federal. Total construction management costs were \$1,723,276 all federal. Total expenditures for the fiscal year were \$42,023,647 of which \$20,547,975 federal and \$21,475,672 nonfederal.

Condition at End of Fiscal Year. Completed project construction consists of the Reach 5 Breakwater (sponsor); Reach 3, Solidarity Drive Revetment (sponsor); Reach 2, Belmont Harbor Peninsula Revetment (sponsor); Reach 4, 31st Street Beach Stabilization (sponsor); and Reach 4, 31st to 33rd Street (Corps). Continuing construction was at Reach 2, Irving to Belmont (Corps); Reach 4, I-55 to 30th Street (Corps); Reach 4, 33rd to 37th Street (Corps); and Reach 4, 51st to 54th Street (sponsor). Engineering and design was continued in Reaches 2 and 4 by the Corps and the non-Federal sponsor. The total cost of the existing project to September 30, 2003, was \$167,887,545 (\$114,427,737 federal funds, \$21,475,672 nonfederal cash and \$31,984,136 in non-federal in-kind services.

17. ILLINOIS BEACH STATE PARK, IL

Location. Northeastern Illinois on the west shore of Lake Michigan along the 9-mile reach of shoreline immediately south of the Illinois-Wisconsin State line. (See NOAA Nautical Chart Numbers 14901 and 14904.)

Previous Projects. None.

Existing Project. Provides for annual beach nourishment and construction of a sediment trap at the south end of the State Park. The project would entail placement of coarse-graded sediment at six stockpile sites at the rate of 124,000 cubic yards in the first year, 104,000 cubic yards in the second year, and 60,000 cubic yards in the third year. Thereafter,

60,000 cubic yards would be placed at the northernmost stockpile annually. The sediment trap would consist of a rubble-mound groin, with a total length of 600 feet from the base of the dunes (400 feet lakeward from the shoreline), with a crest height of about +8 feet above Low Water Datum (LWD). The project was conditionally authorized in Section 501 (b) of the 1986 Water Resources Development Act subject to a report by the Corps of Engineers and approval by the Secretary of the Army. A Feasibility Review Conference was held in April 1991. As a result, the District Engineer was directed to terminate work on this project and to submit a letter report to the Congress summarizing the feasibility study and the results of the Washington level review. Work on the feasibility report was resumed in FY 1994 as directed by the Assistant Secretary of the Army for Civil Works in response to a letter from Congressman John Porter, 10th Congressional District of Illinois.

Local Cooperation. The local project sponsor would be required to provide all lands, easements and rights-of-way; accomplish all required relocations; hold and save the United State free from damages; and provide a cash contribution.

Operations and Results During Period. No work was completed on the pre-construction engineering and design (PED) phase of the project. FY03 funds of \$33,073 were expended to continue the Feasibility study.

Condition at End of Fiscal Year. Total cost of the existing Feasibility study to September 30, 2003 was \$168,055.

18. INDIANA DUNES NATIONAL LAKESHORE BANK PROTECTION, BEVERLY SHORES, IN

Location. Northwestern Indiana, on the southeast shore of Lake Michigan in Porter County, about 35 miles southeast of Chicago Harbor. (See NOAA Nautical Chart Numbers 14095 and 14926.)

Existing Project. Provides for placement of 13,000 feet of stone revetment and periodic repair of riprap to maintain the full length of Lake Front Drive in Beverly Shores, Indiana. The current project was authorized by Public Laws 97-88 and 98-63.

Local Cooperation. Fully complied with. Project lands are held by the National Park Service.

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Operations and Results During Period. No work was performed during this reporting period.

Condition at End of Fiscal Year. Total costs of existing project to September 30, 2003 were \$2,956,000 of which \$660,000 was for new work and \$2,296,000 was for maintenance.

19. INDIANA SHORELINE EROSION, IN

Location. On the south end of Lake Michigan along a two-mile reach of shore west of Michigan City Harbor, Indiana. (See NOAA Nautical Chart Numbers 14095 and 14926.)

Existing Project. The project consists of beach nourishment along approximately two miles of beach between Michigan City Harbor and Beverly Shores, Indiana, requiring an initial placement of 264,500 cubic yards of sand. Periodic replenishment of about 264,500 cubic yards of sand at five year intervals would be required throughout the life of the project. The project was authorized for construction by Section 501 of the Water Resources Development Act of 1986. Estimated federal cost (1997) for new work is \$184,000,000, including future beach nourishment.

Local Cooperation. None required.

Operations and Results During Period. Monitoring of initial sand placement and impacts to fish was performed, and preparation of plans and specifications for the next round of sand placement was initiated. There was no real estate related cost. The FY 2003 cost was \$1,459,247. Engineering and Design cost was \$76,080, sand placement at \$1,333,113 and construction management cost was \$50,054.

Condition at End of Fiscal Year. Initial construction was completed. Monitoring of project and preparation of plans and specifications for additional sand placement was continued. The total cost of the existing project to September 30, 2003 is \$10,287,046 (federal).

20. OTHER AUTHORIZED BEACH EROSION CONTROL PROJECTS

See table 22-E.

21. BEACH EROSION CONTROL UNDER SPECIAL AUTHORIZATION

Beach erosion control activities pursuant to Section 103 of the Rivers and Harbors Act of 1962, as amended. None.

Flood Control

22. CHICAGO RIVER, IL (NORTH BRANCH)

Location. Northern Illinois, in Cook and Lake Counties.

Existing Project. Provides for clearing the channel of the North Branch of the Chicago River of fallen trees, roots, and other debris and objects which contribute to the flooding, unsightliness, and pollution of the river. The project extends from Wolf Point in Chicago, Illinois, to its source just south of Rockland Road east of Libertyville, Illinois. The project was authorized by the River and Harbor Act of December 31, 1970 (Section 116) and amended by the River and Harbor Act of March 7, 1974 and the Water Resources Development Act of 1986.

Local Cooperation. The 1970 Act provided that local interests furnish without cost to the United States all lands, easements, rights-of-way, and disposal areas necessary for construction of the project; hold and save the United States free from damages due to construction; maintain and operate all works after completion without cost to the United States; and agree to bear all costs in excess of \$200,000 for completing construction. The 1974 Act provided that the United States will maintain the channel free of trees, roots, debris and objects at a cost not to exceed \$150,000 per year with non-federal interests paying 25 percent of the cost of maintenance. The 1986 Water Resources Development Act changed the cost sharing to require that non-federal interests pay 50 percent of the cost of maintenance plus the cost of disposal. The requirements are fully complied with.

Operations and Results During Period. No work was performed during this reporting period.

Condition at End of Fiscal Year. Total cost of existing project to September 30, 2003 was \$4,775,691 of which \$231,884 was for new work (\$191,884 federal funds and \$40,000 contributed funds), and \$4,543,807 was for maintenance (\$2,768,632 federal funds and \$1,775,175 non-federal contributed funds).

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23. DES PLAINES RIVER, ILLINOIS

Location. The Upper Des Plaines River is located in the northeastern Illinois counties of Lake and Cook. Its 67 miles flow through 33 communities, which are part of the Chicago metropolitan area.

Existing Project. The Des Plaines flood control project was authorized by Section 101(b) (10) of the 1999 Water Resources Development Act. The optimized project provides a maximum 0.12 foot reduction in stage for the 100-year flood, and the levee features meet the FEMA criteria for 100-year protection. The project consists of six features to construct (three in Lake County and three in Cook County), environmental mitigation, and a flood warning plan. The project adds 1,975 acre-feet of storage by constructing 6 features: a lateral storage area in Van Patton Woods (412 acre-feet); enlarging the existing North Fork Mill Creek Dam by elevating the crest of spillway (500 acre-feet); and excavating the existing reservoirs at Buffalo Creek (476 acre-feet) and at Big Bend Lake (587 acre-feet). The remaining 2 project features are levees with appurtenant interior drainage features. Levee 37 raises portions of Des Plaines River Road and Milwaukee Avenue between Palatine Road and Euclid Avenue from 0.5 to 5 feet over a total length of 8,500 feet. Levee 50 is a combination levee/flood wall in the City of Des Plaines between Dempster Road and the Chicago and Northwestern railroad. The length of this levee would be about 2,600 feet and the length of the floodwall would be 2,115 feet.

Local Cooperation. The nonfederal sponsor is the Illinois Department of Natural Resources (IDNR). IDNR is required to provide all lands, easements and rights-of-way; complete all required utility relocations; hold and save the United States free from damages due to construction or operation of the project; provide the required interior drainage improvements; operate and maintain the completed project; and make a cash contribution toward the cost of construction.

Operations and Results During the Period. Engineering and design work was continued at a cost of \$1,539 (GI) \$69,298 (CG) for a total federal cost of \$70,837 and a nonfederal cost of \$81,257.

Condition at End of Fiscal Year. Total cost of the existing project to September 30, 2003 is \$1,618,814. Federal costs were \$1,226,757 and nonfederal costs were \$392,057.

24. LAKE GEORGE, HOBART, IN

Location. Lake George in Hobart, Indiana and Deep River watershed upstream of the lake through Lake Station, Indiana.

Existing Project. The project consists of the removal of silt, aquatic growth and other material and the construction of silt traps or other devices to prevent and abate the deposition of sediment. Project was authorized by Section 602 of the Water Resources Development Act (WRDA) of 1986.

Local Cooperation. Section 602(b), Water Resources Development Act of 1986 applies. By letter dated March 9, 1987 the City of Hobart, Indiana indicated that it was a potential local project sponsor and applied for credit for previous work applicable to the project under the provisions of Section 104 (d) of the 1986 WRDA. By letter dated March 19, 1999, the City of Hobart, Indiana withdrew its interest in the project.

Operations and Results During Period. No work was performed in FY 2001. Project was terminated in FY 1999.

Condition at End of Fiscal Year. Pre-construction engineering and design was terminated. Total cost of the existing project to September 30, 2002 is \$1,311,977.

25. LITTLE CALUMET RIVER, IN

Location. The Little Calumet River project is located in northwest Indiana between the Illinois-Indiana State line and the Conrail Railroad in east Gary, Indiana.

Existing Project. The project consists of replacing 9.5 miles of existing spoil bank levees with 12.2 miles of new levees, floodwalls, closure and appurtenant structures between the Illinois-Indiana State line and Cline Avenue; construction of 9.7 miles of set-back levees in Gary; a diversion structure at Hart Ditch; permanent evacuation of 29 structures in the Black Oak area of Gary; flood proofing 38 residential structures in Gary; modifying 7 miles of channel and 3 accompanying bridge culvert modifications; modifying one highway bridge; construction of 16.8 miles of hiking trails and accompanying recreation support facilities; and preservation of 788 acres of wetlands with wildlife mitigation measures. The project was authorized by

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Section 401 of the Water Resources Development Act of 1986. The construction contract for Stages II-3A, III and V-1 levee segment and the Stage I-4 demolition contract were completed. Completed construction on East Remediation, and Stage IV-2B.

Local Cooperation. The local sponsor is the Little Calumet River Basin Development Commission. The local cooperation agreement was signed on August 16, 1990. The local sponsor is required to provide all lands, easements and rights-of-ways; provide all required relocations; and hold and save the United States from any damages due to construction or operation of the project. In addition, the local sponsor is required to pay a five percent cash contribution for structural flood control measures, fifty percent for recreation features and twenty-five percent for fish and wildlife enhancements. A memorandum of agreement with the local sponsor to design non-federal improvements was signed on May 20, 1992.

Operations and Results During Period.

Continued construction work on wetland mitigation, Stage III remediation, pump 1A and North 5th pumps and continued work on engineering and design.

Total cost for Real Estate was \$126,574 all Federal real estate management cost. No land costs. Total construction placement cost was \$2,416,410 of which \$2,766,644 was Federal and \$304,766 was non-Federal. Total design cost was \$1,051,886 of which Federal cost was \$974,962 and non-Federal cost was \$76,924. Total cost for supervision and administration was \$479,132 all Federal cost.

At the end of FY 2003 total federal cost was \$4,347,312 and non-federal cost was \$381,690 with a betterment cost of \$0. Total project cost was \$4,729,002.

Condition at End of Fiscal Year. Construction is in progress. Total cost of existing project to September 30, 2003 was \$97,844,793. Federal costs total \$88,548,555; required non-federal costs were \$7,099,561 and non-federal betterment costs \$2,196,677.

26. LITTLE CALUMET RIVER BASIN, CADY MARSH DITCH, IN

Location. Cady Marsh is located in Lake County, Indiana. The Ditch is a tributary of the Little Calumet River system in northwest Indiana and flows through the Towns of Griffith and Highland, Indiana.

Existing Project. The Cady Marsh Ditch flood control project was authorized by Section 401 (a) of the 1986 Water Resources Development Act. The project provides for diverting flood flows from Cady Marsh Ditch to the Little Calumet River through a diversion system under Arbogast Avenue in Griffith. Specifically, the project consists of improving 1,290 feet of Cady Marsh Ditch between Colfax and Arbogast Avenues in Griffith, constructing approximately 5,000 feet of large conduct pipes under Arbogast Avenue, excavating an open channel approximately 2,850 feet long from the north end of Arbogast Avenue to the Little Calumet River, and constructing interior drainage improvements.

Local Cooperation. The local project sponsor is the Town of Griffith, IN. The local sponsor is required to provide all lands, easements and rights-of-way; complete all required utility relocations; hold and save the United States free from damages due to construction or operation of the project; provide the required interior drainage improvements; operate and maintain the completed project; and make a cash contribution toward the cost of construction.

Operations and Results During the Period. New Work: Pre-construction engineering and design was continued at a cost of \$311,743 in FY2003 (\$40,353 was GI and \$271,390 was CG). There were no non-federal expenses.

Condition at End of Fiscal Year. Pre-construction engineering and design is in progress. The total cost of the existing project to September 30, 2003 was \$2,028,414 (Federal cost).

27. McCOOK AND THORNTON RESERVOIRS, IL

Location. The McCook Reservoir will be located near the communities of McCook, Justin and Bedford Park, Illinois at the existing Metropolitan Water Reclamation Solids Management Area. The Thornton Reservoir will be located in the community of Thornton, Illinois at the existing Thornton Quarry.

Existing Project. The project consists of converting two quarries into flood storage reservoirs. The McCook Reservoir will have a storage volume of 21,400 acre-feet (7 billion gallons); the Thornton Reservoir will have a volume of 24,200 acre-feet (7.9 billion gallons). The reservoirs will store floodwater from tunnels constructed or under construction by the U.S. Environmental Protection Agency and the

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Metropolitan Water Reclamation District of Greater Chicago as part of the Tunnel and Reservoir Project (TARP). The project was authorized by Section 3 of the Water Resources Development Act of 1988.

Local Cooperation. The Metropolitan Water Reclamation District of Greater Chicago will be the local sponsor and provide the required local cooperation. The local sponsor is required to provide all lands, easements and rights-of-way; provide all required relocations; and hold and save the United States government free from any damages due to construction or operation of the project. In addition, local sponsors are required to pay a cash contribution to bring the total non-federal share of the flood control improvements to twenty-five percent of the total project cost. The Project Cooperation Agreement for the McCook Reservoir was executed on May 10, 1999.

Operations and Results During Period. New Work: The cutoff wall construction contract was completed, test grout, pumps and tunnel construction contracts were and engineering and design effort were continued. Total costs for FY 2003 were \$24,158,636 (\$11,352,631 Federal and \$12,806,005 Non-Federal). There was no land cost. Real estate cost was \$183 all Federal. Construction placement costs totaled \$19,595,984 (\$8,033,769 federal and \$11,562,215 non-federal). Engineering and design costs totaled \$3,914,353 (\$2,723,719 federal, \$1,190,634 non-federal) Construction management costs were \$648,116 (\$594,960 Federal, \$53,156 non-Federal).

Condition at End of Fiscal Year. Construction is in progress and Engineering and design are continuing. Total costs of the existing project to September 30, 2003 were \$76,127,641 of which \$56,916,285 was federal and \$19,211,357 was non-federal.

28. NORTH BRANCH, CHICAGO RIVER, IL

Location. The North Branch Chicago River Basin is located north of the City of Chicago in suburban Cook and Lake Counties.

Existing Project. The project was authorized by the Water Resources Development Act of 1986 and consists of constructing two excavated floodwater storage reservoirs on the West Fork and one excavated reservoir on the Middle Fork. Section 401 of the 1986 Act also included authorization to reimburse non-federal interests 50 percent of the

costs of planning and construction for three existing reservoirs on the West Fork, known as Techny Reservoirs, and the existing Mid Fork Reservoir on the Middle Fork. In July 1990, the federal government reimbursed the non-federal interests \$4,467,298 for the Techny and Mid Fork Reservoirs.

The total federal cost was \$4,537,435 for these reservoirs. Reservoir 27 in the Village of Bannockburn, is located on the West Fork, 12.7 miles above its confluence with the North Branch Chicago River. It has a floodwater storage capacity of 525 acre-feet. The reservoir construction was completed in June 1990. Reservoir 29A is located 9.6 miles above the mouth of the West Fork and 3.1 miles south of Reservoir 27. The floodwater storage capacity is 575 acre-feet. Two project features, channel relocation and construction of two bridges, are a non-federal responsibility. Reservoir 29A was substantially completed in September 1994. Reservoir 15 is located near the City of Green Oaks on the Middle Fork, 22.1 miles above its confluence with the North Branch Chicago River. The floodwater storage capacity is 500 acre-feet. The reservoir is approximately 42 feet deep except in the sedimentation pool area which is about 15 feet deeper. Construction of Reservoir 15 was completed in May 1992. The local sponsor has contributed \$550,100 for the non-federal improvements for Reservoir 29A.

Local Cooperation. The local sponsor is required to provide all lands, easements and rights-of-way; provide all required relocations; and hold and save the United States government free from any damages due to construction or operation of the project. In addition, local sponsors are required to pay a cash contribution to bring the total non-federal share of the flood control improvements to twenty-five percent of the total project cost.

Operations and Results During Period. Completed HTW construction modifications at Reservoir No. 29A, completed a contract modification for Reservoir No. 29A for non-federal improvements and initiated negotiations to settle the claim for Reservoir No. 29A. Total engineering and design cost was \$24,628 all federal hired labor.

Condition at End of Fiscal Year. The existing project is 100% complete. Total costs of the existing project to September 30, 2003 are \$31,758,809 of which \$25,006,426 is federal and \$2,259,085 is non-federal required contributions. This excludes the \$4,493,298 non-federal cost for the Techny and Mid Fork Reservoirs. Non-federal betterment funds of

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\$550,101 has been expended on bridge and channel betterments at Reservoir 29A. A total of \$7,576,668 in non-federal funds has been expended on investigations in connection with the clean-up of soils contaminated with lead shot pellets at Reservoirs 29A. Non-federal betterment funds in the amount of \$38,500 were expended for work on an impact assessment. A total of \$11,166 (non-federal betterment) was spent at Reservoir 27 for the Illinois Tollway project.

29. O'HARE RESERVOIR, IL

Location. The reservoir is located in an unincorporated portion of Elk Grove Township in Northwestern Cook County, Illinois about 1 mile northwest of Chicago O'Hare International Airport.

Existing Project. The project consists of a 1,050 acre-foot capacity reservoir, excavated to a depth of 80 feet. The reservoir has been constructed at the terminus of the existing system of 6.6 miles of deep tunnels, constructed under the U.S. Environmental Protection Agency and the Metropolitan Water Reclamation District of Greater Chicago Tunnel and Reservoir Project (TARP). The project was authorized by Section 401 of the Water Resources Development Act of 1986.

Local Cooperation. The local sponsor is the Metropolitan Water Reclamation District of Greater Chicago. The local cooperation agreement for the first construction contract, creek relocation, was signed on July 31, 1990. The local sponsor is required to provide all lands, easements and rights-of-way; provide all required relocations; and hold and save the United States government free from any damages due to construction or operation of the project. In addition, the local sponsor is required to pay a cash contribution of five percent of the total project costs. The local cooperation agreement for the remainder of the project, reservoir excavation and lining, was signed July 29, 1991.

Operations and Results During Period. The reservoir construction was substantially completed in 1998. Contract closeout activities were initiated and E&D effort was expended for pending required reservoir repairs. There were no real estate. FY 2003 engineering and design costs totaled \$8,112 (\$8,112 federal).

Condition at End of Fiscal Year. Construction and modifications were completed and closeout

activities were initiated. Total cost of the existing project to September 30, 2003 was \$38,856,935 (\$31,566,944 Federal and \$4,664,510 non-federal, and non-federal improvement costs \$2,625,481).

30. OTHER AUTHORIZED FLOOD CONTROL PROJECTS

See table 22-F.

31. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Emergency flood control activities, repair, flood fighting and rescue work (Public Law 99, 84th Congressional antecedent legislation).

Program	Fiscal Year Costs to September 30, 2003
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Disaster Preparedness	\$ 166,882
Disaster Assistance (FEMA)	\$ 79,658

Flood control activities pursuant to Section 205 of Flood Control Act of 1965, as amended:

Fiscal Year 2003 costs were \$664,135 federal and \$16,090 non-federal for flood control activities. A total of \$25,000 was spent on the Section 205 coordination account. Fox River, McHenry Co., IL, construction phase was completed at the cost of \$29,431 federal and \$4,310 non-federal. Libertyville Estates, IL, construction phase continued at the cost of \$75,152 federal. Kankakee River and Newton Co. (Sumava) P&S was initiated at the cost of \$275,277 federal and \$0 non-federal. City of Oak Forest (Natalie Creek) DPR continued at the cost of \$55,375 federal and \$11,780 non-federal. Stony Creek, IL, P&S initiated at the cost of \$132,417 federal. Deer Creek P&S continued at a cost of \$63,016 federal. Monticello DPR continued at \$8,468 federal.

Section 14, Emergency Streambank and Shoreline Protection:

Fiscal Year 2003 costs were \$234,204 federal and \$1,623 non-federal. A total of \$10,000 was spent on Section 14 coordination account. Lake Michigan Beach Drive, Dune Acres financial closeout was completed at -\$1,623 federal and \$1,623 non-federal; Highland Park construction was completed at \$1,149 federal. Melvina Ditch PDA was continued at \$8,923 federal; Waukegan Sanitary PDA was continued at \$29,746 federal; Zion Sanitary PDA was continued at \$44,183 federal; North Park University PDA was continued at a cost of \$14,852 federal. Village of Riverside PDA was initiated at \$81,106. Addison, North Riverside was initiated at \$39,642. Fox Lake PDA was initiated at \$6,226.

CHICAGO, ILLINOIS DISTRICT

Section 1135, Project modification to improve Environment:

Fiscal Year 2003 costs were \$618,820. A total of \$10,000 was spent on Section 1135 Coordination Account. Indiana Ridge Marsh P&S was initiated at \$22,209. Chicago Sanitary and Ship Canal DPR was completed and P&S initiated at a cost of \$586,611.

Section 206, Aquatic Ecosystem Restoration:

Fiscal Year 2003 costs were \$2,455,276 federal and \$310,554 non-federal. A total of \$25,020 was spent on Section 206 Coordination Account. Sqaw Creek, Lake County, IL DPR continued at a cost of \$152,366. Hickory Creek, Tinley Park, DPR continued at a cost of \$8,037. Chicago Botanical Garden, IL, plans and specifications and construction were continued at a cost of \$125,683 federal and \$217,828 nonfederal. Cuneo Press, Chicago River, construction was completed at \$70,294 federal and \$6,006 non-federal. Weed Street, Chicago River construction was completed at \$1,963 non-federal. Northside PREP/Von Steuben Chicago construction continued at \$436,879 federal and \$84,758 non-federal. Butler Lake, IL, P&S initiated at a cost of \$256,458. Hoffman Dam, IL, DPR continued at a cost of \$252,913. Poplar Creek, IL, DPR continued at a cost of \$129,124. Illinois and Michigan DPR was initiated at a cost of \$68,079. Paul Douglas Woods – South Barrington PRP completed at a cost of \$8,034. Wolf Lake, IN, DPR continued at a cost of \$162,819. Grass Lake, Fox River, IL, DPR was continued at a cost of \$180,586. Kankakee Sands, Fair Oak Farm, IN, DPR was continued at a cost of \$126,202. Lockport Prairie Nature Preserve, IL, DPR was continued at \$199,253. Cedar Lake, IN, DPR was initiated at a cost of \$29,334. Peggy Notebart PRP completed at \$432. Horner Park PRP completed at \$4,822. Erie Park PRP completed at \$10,000. Village of Lemont PRP completed at \$10,000. Sequoit Creek PRP continued at \$9,020. Spring Creek Valley PRP continued at \$7,282. Nippersink Creek PRP completed at \$12,000. Burnham Prairie PRP completed at \$9,404. Orland Park PRP completed and DPR initiated at \$26,824. South Fork of the South Branch DPR initiated at \$30,218. Governor's State University PRP completed at \$10,000. I&M Channahon PRP completed at \$10,000. Eugene Field PRP completed at \$12,545. Ping Tom Park PRP completed at \$12,000. Chain of Lakes, Grass Lake PRP completed at \$10,000. Long Lake DPR initiated at \$25,154. Winfield Creek PRP initiated at \$9,878. Yellow River PRP initiated at \$5,410. Blackberry Creek PRP was initiated at \$9,115.

Section 107, Navigation Harbor:

Fiscal Year 2003 costs were \$160,539. A total of \$10,000 was spent on Section 107 Coordination Account. Whiting Shoreline DPR was continued at \$122,073. Evanston Shoreline DPR was initiated at \$28,467.

General Investigations

32. SURVEYS

Fiscal Year 2003 costs were \$1,149,714 federal and \$793,057 non-federal. Itemized as follows:

	<u>Federal</u>	<u>Non-federal</u>
Flood Damage		
Prevention Studies	\$ 539,899	\$ 682,496
Shoreline Protection	39,440	0
Special Studies	95,685	0
Review Authorize Projects	136,319	78,918
Miscellaneous Activities	46,200	0
Coordination Studies	292,171	31,643

33. COLLECTION AND STUDY OF BASIC DATA

Fiscal Year 2003 costs were \$74,239 federal and \$0 non-federal itemized as follows:

	<u>Federal</u>	<u>Non-federal</u>
Flood Plain Management Services	\$ 74,239	\$ 0

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 22-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost To Sept. 30, 2003
1.	Burns Waterway Harbor, IN (Federal Funds) (O&M)	New Work: Approp. Cost Maint: Approp. Cost	0 0 947,000 947,957	0 0 3,701,760 3,701,606	0 0 1,424,000 1,412,121	0 0 5,345,000 5,335,876	13,584,000 13,584,000 23,949,864 23,928,478
	(Contributed Funds)	New Work: Contrib. Cost Maint: Contrib. Cost	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	15,900 15,900 108,362 108,362
2.	Burns Waterway Small Boat Harbor, IN (Federal Funds) (O&M)	New Work: Approp. Cost Maint: Approp. Cost	0 0 1,858,000 1,857,779	0 0 0 2,052	0 0 120,000 114,318	0 0 714,000 719,668	2,000,000 2,000,000 4,063,935 4,063,921
	(Contributed Funds)	New Work: Contrib. Cost	0 0	0 0	0 0	0 0	1,770,558 1,770,558
3.	Burns Waterway Harbor (Major Rehab), IN (Federal Funds) (Contributed (O&M)	New Work: Approp. Cost New Work: Contrib. Cost	0 0 0 0	0 39 0 0	0 0 0 0	0 0 0 0	13,384,200 13,384,200 0 0
4.	Calumet Harbor and River, IL and IN (Federal Funds) (O&M)	New Work: Approp. Cost Maint: Approp. Cost Rehab: Approp. Cost	0 0 3,326,500 3,322,279 0 0	0 0 3,383,769 3,388,639 0 0	0 0 4,139,000 4,106,234 0 0	0 0 2,820,000 2,850,330 0 0	22,578,567 1/ 22,578,567 1/ 48,577,168 2/ 48,570,333 2/ 5,428,001 3/ 5,428,001 3/
	(Contributed Funds)	Maint: Contrib. Cost	0 0 0	0 0 0	0 0 0	0 0 0	836,667 836,667

CHICAGO, ILLINOIS DISTRICT

TABLE 22-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost To Sept. 30, 2003
5.	Chicago Harbor, IL (Federal Funds) (O&M)	New Work: Approp. Cost	0 0	0 0	0 0	0 0	4,788,827 4/ 4,788,827 4/
		Maint: Approp. Cost	2,601,400 2,548,572	3,396,561 3,306,885	3,274,000 3,309,242	2,193,000 2,266,244	55,978,507 55,933,074
	(Harbor and Dam Funds)	Rehab: Approp. Cost	0 0	0 0	0 0	0 0	1,326,600 1,326,600
		Maint: Approp. Cost	0 0	0 0	0 0	0 0	160,000 160,000
6.	Chicago River, IL (Federal Funds) (O&M)	New Work: Approp. Cost	0 0	0 0	0 0	0 0	1,500,565 5/ 1,500,565 5/
		Maint: Approp. Cost	350,500 348,484	328,222 329,389	356,000 356,390	330,000 330,440	17,444,116 6/ 17,438,961 6/
7.	Indiana Harbor, IN (Federal Funds) (O&M)	New Work: Approp. Cost	0 0	0 0	0 0	0 0	4,897,148 7/ 4,897,148 7/
		Maint: Approp. Cost	259,500 424,600	409,077 408,235	64,000 63,747	61,000 62,219	14,995,565 8/ 14,995,560 8/
	(Contributed Funds)	New Work: Contrib. Cost	0 0	0 0	0 0	0 0	12,500 12,500
8.	Indiana Harbor, Confined Disposal Facility, IN (Federal Funds) (CG 212-075535)	New Work: Approp Cost	1,560,000 1,455,637	2,758,000 1,297,280	4,201,000 4,632,385	5,708,000 5,942,152	14,827,000 13,895,283
	(Contributed Funds)	New Work: Contrib. Cost	0 0	100,000 94,322	2,779,454 633,171	1,750,000 2,627,535	4,629,454 3,355,028
9.	Lake Michigan Diversion, IL (Federal Funds) (O&M)	Maint: Approp. Cost	802,000 801,023	804,200 804,167	810,000 798,141	1,191,000 1,203,312	8,468,200 8,467,520
10.	Michigan City Harbor, IN (Federal Funds)	New Work: Approp. Cost	0 0	0 0	0 0	0 0	1,543,646 9/ 1,543,646 9/

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 22-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost To Sept. 30, 2003
		Maint:					
		Approp.	1,543,500	394,407	2,647,000	1,725,000	18,366,961
		Cost	1,549,497	387,185	2,647,264	1,732,750	18,366,571
		Rehab:					
		Approp.	0	0	0	0	1,618,670
		Cost	0	0	0	0	1,618,670
	(Contributed Funds)	New Work:					
		Contrib.	0	0	0	0	30,512
		Cost	0	0	0	0	30,512
		Maint:					
		Contrib.	0	0	0	0	55,000
		Cost	0	0	0	0	55,000
11.	Waukegan Harbor, IL (Federal Funds) (O&M)	New Work:					
		Approp.	0	0	0	0	823,026 10/
		Cost	0	0	0	0	823,026 10/
		Maint:					
		Approp.	773,000	1,055,832	765,000	793,000	19,508,600 11/
		Cost	772,562	1,051,616	763,799	799,271	19,481,579 11/
15.	Casino Beach, IL (Federal Funds) (CG 412-013047)	New Work:					
		Approp.	0	0	0	0	2,525,000
		Cost	0	0	0	0	2,465,517
	(Contributed Funds)	New Work:					
		Contrib.	333,395	0	0	0	2,499,481
		Cost	333,395	0	0	0	2,449,481
16.	Chicago Shoreline, IL (Federal Funds) (CG 412-013099)	New Work:					
		Approp.	16,539,000	20,193,000	25,626,000	20,404,000	114,489,800
		Cost	24,018,363	20,220,973	25,450,497	20,547,975	114,427,737
	(Contributed Funds)	New Work:					
		Contr.Credits	4,900,000	1,750,000	25,334,136	23,450,479	55,434,615
		Cost	4,900,000	1,750,000	25,334,136	21,475,672	53,459,808
17.	Illinois Beach State Park, IL (Federal Funds) (GI 132-079225)	New Work:					
		Approp.	(1,292)	182,121	126,121	25,000	345,150
		Cost	0	0	123,074	33,073	168,055
18.	Indiana Dunes National Lakeshore, Beverly Shores, IN (Federal Funds) (O&M)	New Work:					
		Approp.	0	0	0	0	660,000
		Cost	0	0	0	0	660,000
		Maint:					
		Approp.	0	0	0	0	2,296,000
		Cost	5,802	0	0	0	2,296,000

CHICAGO, ILLINOIS DISTRICT

TABLE 22-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost To Sept. 30, 2003
19.	Indiana Shoreline Erosion, IN (Federal Funds) (CG 411-013038)	New Work: Approp. Cost	33,000 221,338	838,000 815,267	840,000 156,054	815,000 1,459,247	10,357,800 12/ 10,287,046 12/
22.	Chicago River North Branch, IL (Federal Funds) (O&M)	New Work: Approp. Cost	0 0	0 0	0 0	0 0	191,884 191,884
		Maint: Approp. Cost	41,000 41,561	113,500 112,519	2,000 2,770	0 0	2,768,850 2,768,632
	(Contributed Funds)	New Work: Contrib. Cost	0 0	0 0	0 0	0 0	40,000 40,000
		Maint: Contrib. Cost	48,000 21,364	0 121,403	0 30,977	0 0	1,785,441 1,775,175
23.	DesPlaines River (PED), IL (Federal Funds) (GI ; 451- & 651-)	New Work: Approp. Cost	346,000 334,617	539,000 484,714	0 65,847	0 1,539	933,968 933,536
	(Contributed Funds)	New Work: Contrib. Cost	87,129 84,409	227,860 178,843	100,000 47,548	0 81,257	414,989 392,057
	(CG 511-010249) (Federal Funds)	New Work: Approp. Cost	0 0	0 0	220,000 177,105	131,000 69,298	399,968 293,222
	(Contributed Funds)	New Work: Contrib. Cost	0 0	0 0	0 0	0 0	0 0
24.	Lake George, Hobart, IN (CG 511-008196)	New Work:					
	Federal Funds	Approp. Cost	(3,484,000) 0	0 0	0 0	0 0	1,320,000 1,311,977
25.	Little Calumet River, IN (Federal Funds) (CG 511-075325)	New Work: Approp. Cost	8,061,000 10,332,244	8,289,000 8,570,093	5,695,000 4,761,653	3,542,000 4,347,312	88,761,300 13/ 88,548,555 13/
	(Contributed Funds Required)	New Work: Contrib. Cost	400,000 704,323	540,272 599,185	350,000 369,934	316,000 381,690	7,111,872 7,099,561
	(Non-Federal Improvements)	New Work: Contrib. Cost	550,000 477,000	591,000 671,918	0 0	0 0	2,207,500 2,196,677

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 22-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost To Sept. 30, 2003
26.	Little Calumet River, Cady Marsh Ditch, IN (CG 511-012385) (Federal Funds)	New Work: Approp.	0	350,000	106,600	1,138,000	2,936,600
		Cost	129,065	77,791	341,459	271,390	2,028,414
27.	McCook and Thornton Reservoirs, IL (Federal Funds) (CG 511-012574) (Contributed Funds)	New Work: Approp.	3,859,000	5,362,000	11,195,600	11,415,000	57,113,600
		Cost	4,457,250	5,433,534	11,072,469	11,352,631	56,916,285
		New Work: Contrib.	6,000,000	1,625,000	3,465,000	13,300,000	24,390,000
		Cost	1,352,530	3,337,720	1,715,102	12,806,005	19,211,357
28.	North Branch Chicago River, IL (Federal Funds) (CG 511-075311)	New Work: Approp.	1,100,000	2,565,000	200,000	(58,000)	25,012,500 14/
		Cost	1,182,608	2,664,082	205,129	24,628	25,006,426 14/
	(Contributed Funds Required)	New Work: Contrib.	(37,422)	0	0	0	2,259,832
		Cost	(38,167)	0	0	0	2,259,085
	(Non-Federal Improvements)	New Work: Contrib.	(1,078)	1,080	0	0	550,102
		Cost	0	1,079	0	0	550,101
	(Non-Federal Lead Shot Clean-up)	New Work: Contrib.	0	1,242,100	0	0	7,577,270
		Cost	0	1,256,534	0	0	7,576,668
	(Non-Federal Impact Assessment)	New Work: Contrib.	0	0	0	0	38,500
		Cost	0	0	0	0	38,500
	(Non-Federal Res. 27 IL Tollway)	New Work: Contrib.	0	0	0	0	11,166
		Cost	0	0	0	0	11,166
29.	O'Hare Reservoir, IL (Federal Funds) (CG 511-012412)	New Work: Approp.	(380,000)	275,000	300,000	0	31,572,000
		Cost	(314,661)	196,425	393,929	8,112	31,566,944
	(Contributed Funds Required)	New Work: Contrib.	70,000	0	0	0	5,131,200
		Cost	153,268	10,382	40,698	0	4,664,510
	(Non-Federal Improvements)	New Work: Contrib.	0	0	0	0	2,810,000
		Cost	20,524	0	0	0	2,625,481

CHICAGO, ILLINOIS DISTRICT

TABLE 22-A **COST AND FINANCIAL STATEMENT**

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|---|--|
| 1 Includes \$855,973 for previous projects. | 10 Includes \$218,233 for previous projects. |
| 2 Excludes contributed funds in settlement pursuant to decree (No. 54-C-1608) regarding removal of flue dust and includes \$45,230 for previous projects. | 11 Includes \$15,711 for previous projects. |
| 3 Includes \$689,001 in settlement pursuant to decree regarding removal of flue dust. | 12 Includes \$107,000 of CP&E funds obligated prior to 1 Oct 1985 which are excluded from total project costs IAW EC 1105-2-159 dated 25 Sep 1985. |
| 4 Includes \$446,005 for previous projects. | 13 Includes \$670,529 of CP&E funds obligated prior to 1 Oct 1985 which are excluded from total project costs IAW EC 1105-2-159 dated 25 Sep 1985. |
| 5 Includes \$955,886 for previous projects. | 14 Includes \$489,310 of CP&E funds obligated prior to 1 Oct 1985 which are excluded from total project costs IAW EC 1105-2-159 dated 25 Sep 1985. |
| 6 Includes \$109,463 for previous projects. | |
| 7 Includes \$60,668 for previous projects. | |
| 8 Includes \$2,509 for previous projects. | |
| 9 Includes \$287,389 for previous projects. | |

TABLE 22-B AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	BURNS WATERWAY HARBOR, IN (See Section 1 and 3 of Text)	
Oct. 27, 1965	Provides for breakwater and channel to present dimensions and depths, a north breakwater, west bulkhead, approach channel and outer harbor, east and west harbor arms.	Public Law, 89-298, H. Doc. 160. 88 th Cong., 1 st Sess.
	BURNS WATERWAY SBH, IN (See Section 2 of Text)	
Jul. 14, 1960 Sec. 107	Provides for a 700-foot north breakwater, a 950-foot west breakwater an entrance channel 11-feet deep, a harbor-of-refuge area 10 feet deep and a channel in Burns Waterway 6 feet deep.	Detailed Project Report detailed February 1983.
	CALUMET HARBOR AND RIVER, IL AND IN (See Section 4 of Text)	
Mar. 3, 1899	Outer harbor protected by breakwaters.	Annual Report, 1896, pp. 2584 et Seq. and H. Doc. 277, 54 th Cong., 1 st Sess.
Jun. 13, 1902		H. Doc. 172, 54 th Cong., 2 nd Sess.
Mar. 3, 1905	Five turning basins.	H. Doc. 346, 60 th Cong., 1 st Sess.
Jun. 25, 1910	Provided for shape and dimensions of turning basins.	
Sep. 22, 1922 Aug. 30, 1935 ^{1,2}	Consolidated the two projects for Calumet Harbor and Calumet River. Detached breakwater, dredging outer harbor to existing project depth and dimensions; deepen river entrance channel and river to existing project depths; widen and straighten river channel; five turning basins to same depth as adjacent channel.	H. Doc. 494, 72 nd Cong., 2 nd Sess.
Aug. 30, 1935	Dredging area A and B in south end of Lake Calumet and an entrance channel 300 feet wide and 21 feet deep.	H. Doc. 180, 73 rd Cong., 2 nd Sess.
Mar. 2, 1945 ³	An approach channel to harbor 3,200 feet wide and 28 feet deep through shoals outside breakwater and closing existing gap between breakwaters.	H. Doc. 233, 76 th Cong., 1 st Sess.
Jul. 14, 1960 ¹³	Depth of 29 feet in lake approach to 28 feet in outer harbor, and 27 feet in river entrance up to E.J. & E. Ry. Bridge.	H. Doc. 149, 86 th Cong., 1 st Sess. ⁸
Oct. 23, 1962 ¹³	Deepen, widen and straighten channel in Calumet River from E.J. and E. Ry. Bridge, to and including turning basins 1, 3 and 5 to 27 feet; enlarge turning basins 3 and 5; channel into Lake Calumet to 27 feet deep for 3,000 feet and a width of 1,000 feet; and eliminate turning basins 2 and 4 from project.	H. Doc. 87 th Cong., 2 nd Sess. ⁵
Oct 27, 1965 ¹³	Modification of Act of Oct 23, 1962. Protection for Elgin, Joliet and Eastern Railway Bridge over the Calumet River, to permit dredging to full width of the south draw to depth of 27 feet, and temporary protection for center pier and south abutment of the New York, Chicago and St. Louis Railroad Bridge (Nickel Plate) to permit dredging of full width of south bridge draw to depth of 27 feet prior to its replacement.	H.R. 973, 89 th Cong., 1 st Sess.

CHICAGO, ILLINOIS DISTRICT

TABLE 22-B AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
CHICAGO HARBOR, IL (See Section 5 of Text)		
Jul. 11, 1870	Inner breakwaters and inner basin.	H. Ex. Doc. 114, 41 st Cong. 2 nd Sess. and Annual Report 1870, pp. 1562-1567
Jun. 14, 1880	Exterior breakwater.	Annual Report 1870, pp. 1562-1567
Mar. 3, 1899	Present project depth in basin and entrance to Chicago River.	Annual Report 1897, pp. 2790-2791
Jul. 25, 1912	Shore-arm and southerly extension of exterior breakwater	H.Doc 710, Cong. 2 ^d Sess
Mar. 2, 1919	Modification of area to be dredged in inner basin.	H.Doc 1303, 64 th Cong, 1 st Sess.
Mar 3, 1931	Shore-arm extension of exterior breakwater transferred to Lincoln Park Commissioners.	Public Law 797, 71 st Cong
Mar. 2, 1945	Resumption of jurisdiction over shore-arm extension breakwater and over certain navigable waters in Lake Michigan which lie in northwestern part of outer harbor.	Public Law 14, 79 th Cong.
Oct. 23, 1962	Deepen a lake approach channel to 29 by 800 feet wide for 6,600 feet; deepen channel and maneuver area inside harbor entrance to 28 by 1,300 feet wide.	H.Doc. 485, 87 th Cong., 2 nd Sess. ⁴
Dec. 4, 1981	Provides for lock operations and maintenance responsibilities in the	Sec. 107 of P.L. 97-88
Jul. 30, 1983	interests of navigation.	P.L. 98-63
CHICAGO RIVER, IL (See Section 6 of Text)		
Mar. 3, 1899	For project depth of 21 feet in lieu of that fixed by act of Jun 3, 1896.	Specified in act.
Jun. 13, 1902	Turning basins	Specified in act.
Mar. 2, 1907	Interpreted by Chief of Engineers, April 11, 1908, as adopting new work of the then existing project for 21-foot depth.	H. Doc. 95, 56 th Cong. 1 st Sess. (Annual Report, 1900, p. 3863 and Annual Report 1909, p. 709)
Mar. 2, 1919	Eliminated all work except maintenance of main river.	H. Doc. 1294, 64 th Cong. 1 st Sess.
Jul. 24, 1946	Dredging channel 9 feet deep to within 30 feet of existing bulkheads and river banks from North Ave. to Belmont Ave., thence 9 feet deep and 50 feet wide to Addison St.	H. Doc 767, 78 th Cong., 2 nd Sess. ^{6,7}
INDIANA HARBOR, IN (See Section 7 of Text)		
Jun 25, 1910	Maintenance of outer harbor. Maintenance of inner harbor channel when deeded free of cost to and accepted by the United States.	H. Doc. 1113, 60 th Cong., 2 nd Sess.
Mar. 4, 1913	Breakwaters.	H. Doc. 690, 62 nd Cong., 2 nd Sess.
Mar 2, 1919	Lighthouse crib, present length and alignment easterly and northerly breakwaters.	Rivers and Harbors Committee Doc. 6, 65 th Cong., 2 nd Sess.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 22-B		AUTHORIZING LEGISLATION	
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Acts	Work Authorized	Documents
Mar. 20, 1922 Mar. 3, 1925	Reduce channel length to be maintained in extension to Lake George Authorized Secretary of War to modify project so far as relates to length and alignment of breakwaters and to sell Youngstown Steel and Tube Co. about 1,180 linear feet of shoreward end of existing north breakwater.	Public Law 176, 67 th Cong
Mar. 2, 1929 July 3, 1930 ¹⁰	Accept 2.3 acres of land for construction of the Forks Turning Basin. Existing project channel width and depth in Lake George Branch and turning basin at the Forks	Rivers and Harbors Committee Doc. 21, 71 st Cong., 2 nd Sess.
Jul. 30, 1932	Authorized Secretary of War to sell to Inland Steel Co., about 1,903 linear feet of southerly end of existing east breakwater.	Public Law 219, 72 nd Cong.
Aug. 30, 1935 ¹¹	Extended easterly breakwater, dredge entrance channel and outer harbor, deepen channel between bulkhead fills, widen main stem of canal and portion of Calumet River Branch to 141 st St.	Rivers and Harbors Committee Doc. 29, 72 nd Cong., 1 st Sess.
Aug. 28, 1937	Modified conditions of local cooperation required before enlargement of Indiana Harbor Canal is undertaken by United States.	Rivers and Harbors Committee Doc. 13, 75 th Cong., 1 st Sess.
Jul. 14, 1960	Increase authorized depths of 29 feet in outer harbor entrance channel, 28 feet in outer harbor and 27 feet in canal entrance channel to first E. J. and E. Ry. Bridge.	H. Doc. 195, 86 th Cong. 1 st Sess.
Oct. 27, 1965 ¹²	Deepen main canal from landward end of canal entrance channel to a point lakeward of Dickey Place Bridge over a modified channel width of 190 feet, except through bridge openings.	H. Doc. 227, 89 th Cong. 1 st Sess.
INDIANA HARBOR CDF, IN (See Section 8 of Text)		
LAKE MICHIGAN DIVERSION (See Section 9 of Text)		
Nov. 17, 1986	Responsible for monitoring of Lake Michigan Diversion.	Section 1142, WRDA of 1986
MICHIGAN CITY HARBOR, IN (See Section 10 of Text)		
	East breakwater and old east pier enclosing the outer basin.	Recommendations of a Board of Engineers, Annual Report 1870, p. 123.
	Extension of east pier.	Reports of Boards of Engineers, Annual Rpt 1851, pp. 2187-2189; Annual Report 1882, p. 2264-2266.
Mar. 3, 1889	Extend east pier and construct detached breakwater.	Annual Report 1897, pp. 2903-2904.
Mar 3, 1905	Lower turning basin. Rebuild west pier as at present location. Present project dimensions of entrance channel.	Joint Resolution of Cong. approved May 13, 1908. Public Law 23.

CHICAGO, ILLINOIS DISTRICT

TABLE 22-B AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
Jun. 21, 1927	Existing project depth in channel, and in lower and middle turning basins, eliminated improvement of Trail Creek above middle turning basin and uncompleted portion of detached breakwater, abandonment of old east breakwater and old east pier enclosing outer basin.	H. Doc. 279, 69 th Cong., 1 st Sess.
Aug. 30, 1935	Restore and repair westerly 1,000 feet of east breakwater, dredging outer basin and enlarging entrance to basin through east pier.	River and Harbors Committee Doc 34, 74 th Cong., 1 st Sess.
Jul. 14, 1960 Sec. 107	Dredge river channel 50 feet wide and 6 feet deep from upper turning basin to E. Street Bridge.	Detailed Project Report dated June 1965 ⁸ .
WAUKEGAN HARBOR, IL (See Section 11 of Text)		
Jun. 14, 1880	Parallel piers and basins.	Annual Rpt 1880, p. 142
Aug. 3, 1882	Modified location of harbor entrance.	Annual Report 1882, pp. 277, 2162.
Jun. 13, 1902	Detached breakwater, extend piers, increase width of harbor at inner end of north pier and dredge channel and basin to depth of 20 feet.	H. Doc. 343, 56 th Cong., 1 st Sess.
Jul. 3, 1930	Extension of breakwater to shore, dredging near outer end of north piers and enlarging inner basin.	Rivers and Harbors Committee Doc 27, 71 st Cong., 2 nd Sess.
Mar. 2, 1945	Dredge an entrance channel to existing project dimensions from outer end of north pier to project depth in lake and dredge an anchorage area in southwest corner of inner basin to existing project depth. Abandonment of dredging triangular area in southwest corner of inner basin to 18 feet deep.	H. Doc. 116, 77 th Cong., 1 st Sess.
Dec. 17, 1970 Sec. 201 Oct. 27, 1965	Provides for deepening the existing entrance channel in the outer harbor to 25 feet and extending to the depth in Lake Michigan, at widths varying from 380 feet to 500 feet; deepening the channel between piers to a depth of 23 feet at a width of 180 feet and deepening the inner basin to 23 feet and extending its limits approximately 275 feet northward.	H. Doc. 368, 90 th Cong., 2 nd Sess.
CASINO BEACH, IL (See Section 15 of Text)		
Nov. 17, 1986	Provides for encasing approximately 1,800 feet of the existing Casino Beach jetty in steel sheet piling and a concrete cap and replacing beach fill.	Feasibility Report dated Feb. 1983.
ILLINOIS BEACH STATE PARK, IL (See Section 17 of Text)		
Nov. 17, 1986	Provides for 46 offshore breakwaters approximately 150 feet long, initial beach nourishment of 100,000 cubic yards and periodic nourishment of 100,000 cubic yards at 5-year intervals.	Feasibility Report dated June 1982.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 22-B AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
	INDIANA DUNES NATIONAL LAKESHORE, BEVERLY SHORES, IN (See Section 18 of Text)	
Dec. 4, 1981	Provides for emergency shore protection repairs to stone revetment initially constructed in 1973.	Public Law 97-88
Jul. 30, 1983	Provides for operations and maintenance of shore protection measures.	Public Law 98-63
	INDIANA SHORELINE EROSION, IN (See Section 19 of Text)	
Nov. 17, 1986	Beach nourishment of 2-mile reach of shore west of Michigan City Harbor, Indiana	Sec. 501, WRDA 1986
	DES PLAINES, IL (See Sections 23 of Text)	
Aug. 17, 1999	Project has six structural features: Prospect Heights (Levee 37), Des Plaines (Levee 50), Big Bend Lake expansion, North Fork Mill Creek dam raise, Buffalo Creek expansion, Van Patten Woods lateral storage area.	Sec. 101, WRDA 1999
	LAKE GEORGE, HOBART, IN (See Section 24 of Text)	
Nov. 17, 1986	Removal of silt, aquatic growth and construction of silt traps.	Sec. 602, WRDA 1986.
	LITTLE CALUMET RIVER, IN (See Section 25 of Text)	
Nov 17, 1986	Provides for levee construction, a diversion control structure at the mouth of Hart Ditch. Permanent evacuation of a portion of the Black Oak area of Gary and non-structural flood proofing measures in Gary.	Sec. 401, WRDA 1986
	LITTLE CALUMET RIVER BASIN, CADY MARSH DITCH, IN (See Section 26 of Text)	
Nov. 17, 1986	Widening and deepening 1,250 feet of Cady Marsh Ditch, installing 4,880 feet of pipe and excavating 2,850 feet of open channel.	Feasibility Report dated April 1984
	McCOOK AND THORNTON RESERVOIRS, IL (See Section 27 of Text)	
Nov. 17, 1988	Provides for construction of two floodwater storage reservoirs in the quarries of the same name.	Sec. 3, WRDA 1988
	NORTH BRANCH CHICAGO RIVER, IL (See Sections 22 and 28 of Text)	
Nov. 17, 1986	Construction of three reservoirs and reimbursement to locals for 50% of the costs of Techny and Mid-Fork Reservoirs	H. Doc. 100-72, 100 th Cong., 1 st Sess., Sec. 401, WRDA 1986.
Dec. 31, 1970	Clearing fallen trees, roots and other debris and objects which contribute to flooding.	River and Harbor Act (Sec. 116)

CHICAGO, ILLINOIS DISTRICT

TABLE 22-B **AUTHORIZING LEGISLATION**

Acts	Work Authorized	Documents
<p>O'HARE RESERVOIR, IL (See Section 29 of Text)</p>		
Nov. 17, 1986	Provides for a 1,050 acre-foot excavated reservoir.	Sec. 401, WRDA 1986
<div> <div> 1. Included in Public Works Administrative Program Sep. 6, 1943 and Dec. 16, 1933. 2. Uncompleted portion was deauthorized in 1977 (dredging in front of U.S. Steel Corp.) 3. Uncompleted portion was deauthorized in 1977 (breakwater closure). 4. Contains latest map of harbor. Uncompleted portion is inactive. 5. Contains latest map of river. 6. Latest published map is in Annual Report for 1914, opposite p. 2928. </div> <div> 7. Contains latest published map of North Branch above North Ave. 8. Contains latest published map. 9. Completed under previous project. 10. Uncompleted portion was deauthorized in 1977 (widen and deepen Lake George Branch). 11. Include in Public Works Administration Program Sep. 6, 1933 and Jul. 25, 1934. Uncompleted portion was deauthorized in 1977 (widen and deepen main canal and Calumet River Branch). 12. Project deauthorized in 1977. 13. Project deauthorized in 1989. </div> </div>		

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 22-C EXISTING NAVIGATION PROJECTS

			See		
Section In Text	Project	Item	Length (feet)	Width (feet)	Depth (feet)
1.	Burns Waterway Harbor, IN	North Breakwater	4,630	—	—
		West Breakwater	1,200	—	—
		Approach Channel	2,200	400	30
		Outer Harbor	3,700	Varies	28
		East Harbor Arm	2,100	620	27
		West Harbor Arm	3,800	620	27
2.	Burns Waterway SBH, IN	North Breakwater	678	—	—
		West Breakwater	1,043	—	—
		Approach Channel	1,200	200	11
		Burns Waterway	5,593	100	9
4.	Calumet Harbor and River, IL and IN	Northerly Crib Breakwater	6,714	—	—
		Southerly Steel Breakwater	5,007	—	—
		North Pier	2,450	—	—
		Chicago Confined Disposal Facility	2,979	—	—
		Approach Channel	9,700	3,200	29
		Outer Harbor	10,500	3,000	28
		River Entrance	3,000	290	27
		Elgin, Joliet & Eastern Railway Bridge to turning basin No. 3	21,000	200	27
		Turning Basin No. 3 to Turning Basin No.5	8,000	Variable	27
		Approach into Lake Calumet	4,000	400	27
		Extension in Lake Calumet	3,000	1,000	27
		Turning Basins 1, 3 and 5	—	—	27
5.	Chicago Harbor, IL	Shore Arm Extension	2,250	—	—
		Exterior Breakwater	5,421	—	—
		Exterior Breakwater Southerly Extension	4,944	—	—
		North Inner Breakwater	4,034	—	—
		South Inner Breakwater	2,544	—	—
		North Pier	960	—	—
		Approach Channel	6,600	800	29
		Channel and maneuver	2,200	1,300	28
		Lock	600	80	23
		Inner Basin	1,270	740	21
		Entrance Channel	7,300	190-470	21
6.	Chicago River, IL	Main Branch of Chicago River	3,800	190-390	21
		North Branch of Chicago River	11,100	91-390	21
		North Branch Canal	5,500	56-210	21
		North Branch Turning Basin	—	—	21

CHICAGO, ILLINOIS DISTRICT

TABLE 22-C EXISTING NAVIGATION PROJECTS

Section In Text	Project	See		Length (feet)	Width (feet)	Depth (feet)
		Item				
7.	Indiana Harbor, IN	Northerly Breakwater		1,120	—	—
		Easterly Breakwater		2,525	—	—
		Approach Channel		7,200	800	29
		Outer Harbor		7,200	Varies	28
		Entrance Channel		3,600	65-280	27
		Main Channel		7,400	61-210	22
		Turning Basin		—	—	22
		Lake George Branch		3,700	64-160	22
		Calumet River Branch		2,500	160-260	22
9.	Michigan City Harbor IN	Detached Breakwater		1,304	—	22
		West Pier		835	—	—
		East Pier	2,276	—	—	—
		East Breakwater		1,000	—	—
		Entrance Channel		1,900	150-425	18
		Main Channel		2,400	120-150	18
		Outer Basin		900	900	8-12
		Trail Creek		3,000	50-100	8
		Trail Creek		2,300	50	6
10.	Waukegan Harbor, IL	North Breakwater and Shore Connection		1,896	—	—
		North Pier into North Revetment		2,074	—	—
		South Pier		3,111	—	—
		Entrance Channel		3,250	390	22
		Channel to Inner Basin		1,700	200	18
		Inner Basin		1,650	375-500	18
		Anchorage Area		¹	¹	8

¹Area of about 6 acres.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 22-D OTHER AUTHORIZED BRIDGE ALTERATION

Project	Full Report See Annual Report For	<u>Cost to September 30, 2003</u> For Last	
		Construction	Operation and Maintenance
Calumet River Bridges ¹	1967	\$1,625,068	

¹Transferred to Department of Transportation in accordance with Section 6(g) of the Act of October 16, 1966.
P.L. 89-670

TABLE 22-E OTHER AUTHORIZED BEACH EROSION PROJECTS

Project	Full Report See Annual Report For	<u>Cost to September 30, 2003</u> For Last	
		Construction	Operation and Maintenance
Mt. Baldy, Indiana Dunes National Lakeshore, IN	1984	\$1,500,000	_____
Hollywood-Ardmore Beach, Chicago, IL	1982	237,271	_____
Evanston, IL	1979	766,052	_____
Lake Michigan-Lake Bluff, IL	1976	244,889	_____
Lake Michigan-Lake Forest, IL ¹	1975	65,611	_____
Illinois Shore of Lake Michigan, Kenilworth, IL ²	1975	5,200	_____

¹Authorized by River and Harbor Act of 1954.

²Uncompleted portion deauthorized in 1977.

TABLE 22-F OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Full Report See Annual Report For	<u>Cost to September 30, 2003</u> For Last	
		Construction	Operation and Maintenance
Lake Michigan, Edgewater/Rogers Park Communities, Chicago, IL	1989	\$2,062,347	_____
Little Calumet River, IL	1984	583,000	_____
Kankakee River Ice Management	1993	44,791	_____

CHICAGO, ILLINOIS DISTRICT

TABLE 22-G **DEAUTHORIZED PROJECTS**

	For Last Full Report See Annual Report For	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended
Illinois Shore of Lake Michigan, Winnetka, IL	1975	1977	----	----
Illinois Shore of Lake Michigan, Chicago, IL	1975	1977	----	----
Kankakee River, IL and IN				
Levee between Shelby Bridge and Baum's Bridge in IN	1938	Nov 17, 1986	----	----
Little Calumet River, IL and IN				
Little Calumet River and Tributaries, IL and IN	1968	Nov 17, 1986	53,136	----
Calumet Harbor and River, IL and IN				
Widening and straightening the Calumet River in the vicinity of 106 th Street and closing the gap between breakwaters, and dredging minor shoals in the outer harbor.	1990	Jan 1, 1990	----	----
Wilmington Ice Control Demonstration	----	Nov 18, 1991	----	----

NASHVILLE, TN DISTRICT

This district comprises portions of southern Kentucky, southwestern Virginia, western North Carolina, northern Georgia and Alabama, northeastern Mississippi and practically

all of Tennessee except western portion, and embraces drainage basins of Tennessee and Cumberland Rivers and their tributaries.

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NAVIGATION

1. CUMBERLAND RIVER, TN AND KY

Location. Formed by junction of Poor and Clover Forks in Harlan County, KY, about 694.2 miles above its mouth, and flows west to Burnside, KY, from whence it makes a loop southwestward into Tennessee, passes Nashville, and returns northwestward to Kentucky, emptying into Ohio River near Smithland, KY (See Geological Survey base maps of Tennessee and Kentucky.)

Previous projects. For details see pages 1898 and 1901 of Annual Report for 1915, and page 1208 of Annual Report for 1938, and pages 1069 and 1070 of Annual Report for 1962.

Existing project. For details, see Annual Report for FY02.

Local cooperation. Under modified project for 9-foot navigation and multiple-purpose development, recreation features of reservoir components are subject to certain conditions of non-Federal cost-sharing under Federal Water Project Recreation Act of 1965.

Terminal facilities. There are 42 terminals on the Cumberland River (5 Municipally owned and open for public use; 5 government owned facilities and 32 privately owned facilities). A total of 18 terminals have railroad connections. Principal commodities handled are petroleum products, stone, sands, gravel, coal, coke, iron, steel, chemicals and grain. Facilities considered adequate for existing commerce. For further information see page 695 of Annual Report for 1969.

Operations during fiscal year. New work: None. Maintenance: Operations and Maintenance improvements included replacement of the electrical & hydraulic systems at Cheatham Lock. Major rehab studies were continued for Barkley Power Plant and Old Hickory Power Plant. Cheatham Lock was dewatered for repairs. Canal Recreation Area on Lake Barkley had several improvements for the Lewis and Clark Commemoration. Work was begun for facility protection improvements at Barkley and Old Hickory. An estimated 22 million tons of commodities were locked through the Cumberland River Locks. Commercial lockages were approximately 4,500 and 5,000 recreational craft were also locked through. Total sales energy generated at Barkley Dam (953,443,293 kw-hr) was made available through Southeastern Power Association to the Tennessee Valley Authority, Southern Illinois Power Cooperative, Big Rivers Rural Electric Cooperative Corporation, and Indiana Statewide Rural Electric Cooperative, Inc., Hoosier Energy Division. Total sales energy generated at Cheatham Dam (221,533,120 kw-hr), Cordell Hull (479,584,943 kw-hr), and Old Hickory (610,648,370 kw-hr) was made available for distribution. Activities under reservoir management program comprising malaria control, shoreline sanitation, land management and disposal, and maintenance of public-use facilities continued.

2. KENTUCKY LOCK ADDITION, KY

Location. Kentucky Lock and Dam is located in western Kentucky at Mile 22.4 of the Tennessee River between Livingston and Marshall Counties.

Existing Project. Kentucky L&D was completed in 1945 by the Tennessee Valley Authority. TVA continues to operate the dam and powerhouse while operation of the 110'x600' navigation lock is the responsibility of the Nashville District. Products from 20 states pass through the system of Kentucky and Barkley Locks, the lower-most locks on the Tennessee and Cumberland Rivers, respectively. Over 80% of the commercial tows hauling these products pass through KY Lock instead of Barkley Lock because of difficult and costly navigation on the Cumberland River below Barkley. Since most of the tows are greater than 600' in length, they must perform a time-consuming double lockage to transit through the existing 600' long KY Lock. This results in average delays between three to five hours per tow under existing traffic levels. Since the traffic levels are expected to grow in the near future, these delays will also increase. The last traffic forecast developed in 1995 estimated that 43 M tons of products would be transported through the Kentucky-Barkley system in the year 2000. Actual tonnage for the system in 1997 was 43.5 M tons and has leveled out and decreased slightly over the few years since. It costs a tow about \$400/hour to wait in line at the lock. Construction of a new 1200' lock would eliminate the delay time in the near term and drastically shorten it for forecasted traffic levels past the year 2020.

Project Description. The 1992 Kentucky Lock Feasibility report recommended a new 110' X 1200' lock adjacent and landward of the existing 110' X 600' lock. The project was authorized for construction in WRDA 96. Average annual benefits attributed to a new lock are \$71M (Oct. '03). Most of these benefits are associated with improving the performance of the lock by reducing traffic delays and disruptive lock outages for maintenance and major rehabilitation work. Based on an estimated construction cost of \$579M (Oct. '02), the new lock project has a Benefit/Cost ratio of 2.2 (@5.875%). Other project features in addition to the new lock itself are three major relocation efforts: 1) four large TVA transmission towers, 2) about 2 miles of the Paducah and Louisville Railway, including a major river bridge, and 3) about 2 miles of U.S. Highway 62, also on a new major river bridge.

Operations during fiscal year. FY 2003 funding of \$23.1M was used to advance the design of the project, complete one construction contract, and continue construction on three contracts: 1) the West Bank Approaches to the Tennessee River Bridges (99% complete), 2) the Tennessee River Bridges' Substructures (47% complete), and 3) the Upstream Cofferdam (45% complete). The Benton Wetlands Mitigation construction was completed in FY 03. Significant design activities that were progressed in the FY include design of the lock including advancements in site development, site utilities, upstream lock excavation, wall monoliths, materials testing, and electrical/mechanical features. The Railroad and

NASHVILLE, TN DISTRICT

Highway Superstructure Plans and Specifications were advanced to the 90% level.

3. TENNESSEE RIVER, TN, AL AND KY

Location. Formed by junction of French Broad and Holston Rivers in eastern Tennessee, 4.4 miles above Gay Street Bridge at Knoxville, flows southwest into northern Alabama, thence in a generally westerly course across north Alabama, to northeast boundary of Mississippi, thence nearly due north across Tennessee and Kentucky, entering Ohio River at Paducah, 652.1 miles from junction of French Broad and Holston Rivers. (See Geological survey base map of Tennessee River Basin.)

Previous projects. For details see pages 1902-1906, Annual Report for 1915; pages 1190-1194, 1196-1216, and 1220-1222, Annual Report for 1929; and page 1216, Annual Report for 1938.

Existing project. Originally provided for permanent improvement of river for a navigable depth of 9 feet at low water from mouth about 650 miles to Knoxville, TN. Only work performed by the Corps was construction of locks at General Joe Wheeler Dam and Wilson Dam. Tennessee Valley Authority program provided for obtaining authorized 9-foot project by construction of high dams and locks and utilization of certain locks and dams previously constructed under jurisdiction of the Corps. (See Table 23-B for Authorizing Legislation.) Subsequent construction by the TVA of Melton Hill Dam extends navigable channel of Tennessee River system up the Clinch River about 38 miles above damsite (mile 23.1) to vicinity of Clinton, TN. (See table 23-I on Tennessee River.) In accordance with general navigation laws placing control and supervision over navigable waters under direction of Secretary of the Army, the Corps of Engineers operates and maintains all locks, and maintains navigation channels and safety harbors by performing all necessary maintenance dredging and snagging operations. For information concerning other functions of the Corps under division of responsibilities for Tennessee River since adoption of Tennessee Valley Authority Act of 1933, see page 1084 of Annual Report for 1962.

Local cooperation. Authorization requires no local cooperation in construction of alternate system of low dams. It does, however, provide that if high dams are built before the United States builds projected locks and low dams which are to be replaced, the United States shall contribute to cost of substituted structures an amount equal to estimated cost of works of navigation for which substitution is made.

Terminal facilities. There are 150 terminals on the Tennessee River (13 municipally owned, 15 government owned facilities and 122 privately owned facilities). A total of 79 terminals have railroad connections. Principal commodities handled are petroleum products, stone, sand, gravel, coal, coke, grain, chemicals, iron, and steel. Facilities considered adequate for existing commerce. A list of terminals is revised annually and can be obtained from Division Engineer, Ohio

River Division, Corps of Engineers, Cincinnati, Ohio. For further information see page 698 of Annual Report for 1969.

Operations during fiscal year. Channel work by government plant and hired labor consisted of dredging and snagging at various locations, and maintenance of mooring facilities and safety harbors. Cost of channel maintenance was \$2,289. Maintenance: Major maintenance included dewatering and repairs to Wilson Main and Pickwick Main Locks. Mooring cells were replaced at mile 470.9 and 529.7. Approximately 1,000 cubic yards of silt was removed from Florence Port, mile 256.5, and placed upland by hired labor channel maintenance dredging. An estimated 45 million tons of commodities were locked through the Tennessee River Locks. Commercial lockages were approximately 23,000 and 17,500 recreational craft were also locked through. The long-term program to maintain Chickamauga Lock was continued. Maintenance to keep the lock operational included the design and installation of a sump pump/ventilation system, installation of grated walkways over the lock, and widening of the access ramp onto the lock. Phase-II as-builts drawings were also updated to keep track of the changes made on the lock.

4. TENNESSEE-TOMBIGBEE WATERWAY, AL AND MS

Location. West Central Alabama and Northeastern Mississippi; in Marengo, Sumter, Greene and Pickens Counties, Alabama, and Noxubee, Lowndes, Clay, Monroe, Itawamba, Prentiss and Tishomingo Counties, Mississippi.

Existing project. For details, see Annual Report for FY02.

Local cooperation. Authorization requires local interests to construct, maintain and operate all highway bridges, construct and maintain all highway relocations or alterations, make and maintain alterations as required to sewer, water supply and drainage facilities, assume cost of operation and maintenance of utility crossings, provide and maintain as required suitable and adequate river and canal terminals in accordance with plans approved by the Secretary of the Army and the Chief of Engineers.

Operations during fiscal year. The Mobile District is responsible for operation and maintenance of the entire Tennessee-Tombigbee Waterway. The project is 100% complete.

5. NAVIGATION WORK UNDER SPECIAL AUTHORIZATION

Navigation activities pursuant to Sec. 107, Public Law 86-645, as amended (preauthorization).

During the period a total of \$100,094 were expended for Section 107 projects, \$14,612 for Barton Riverfront Park, Muscle Shoals, AL, \$34,446 for Point Mallard Park, Decatur, AL, \$11,855 for Tennessee River, Bridgeport, AL, \$34,257 for Tri-State Commerce Park, Luica, MS and \$4,924 in the coordination account.

ALTERATION OF BRIDGES

6. AUTHORIZED ALTERATION OF BRIDGES

Work on Woodland Street Bridge, under Truman-Hobbs Act, was initiated in 1965 and completed in 1966. Costs were \$987,632. For details see page 922 of Annual Report for 1967.

FLOOD CONTROL

7. BIG SOUTH FORK NATIONAL RIVER AND RECREATIONAL AREA, KY AND TN

Location. The project is located in Northeastern Tennessee and Southeastern Kentucky along the Big South Fork River and its tributaries in Pickett, Scott, Fentress, and Morgan Counties, Tennessee, and McCreary County, Kentucky.

Existing project. A National River and Recreation Area was established in accordance with the concept included in the interagency report prepared pursuant to section 208 of Flood Control Act of 1968. Total acreage was not to exceed 125,000 acres. The act specifically established the National Area for the purpose of preserving and interpreting the scenic, biological, archeological and historical resources of the river gorge area and developing the natural recreational potential of the area. The project was authorized by the Water Resource Development Acts of 1974, 1976, and 1986. (See table 23B for authorizing legislation). The authorized cost (ceiling) for the project was \$156,122,000. \$112,588,920 was appropriated to the Corps of Engineers for design and construction of park facilities. The first construction contract was awarded in June 1981. By Memorandum of Agreement dated 1 October 1990 jurisdiction of the area was transferred to The Department of Interior.

Local cooperation. None required.

Operation during fiscal year. The Memorandum of Agreement between the Department of Army and the Department of Interior, transferring jurisdiction of the Big South Fork National River and Recreation Area, itemized activities to be completed by the Army. No construction items were completed this fiscal year.

8. BLACK FOX, MURFREE, AND OAKLAND SPRINGS, TN

Location. Black Fox, Murfree, and Oaklands Springs, wetlands lie in Murfreesboro, Tennessee.

Existing project. Project features include trails, boardwalks, observation platforms, parking, removing exotic invasive vegetation, and planting native species. At Oaklands, the existing ante-bellum mansion will be enhanced by planting tree species native to Tennessee. Ecosystem restoration features include the creation of additional wetlands and in-stream structures. Murfree Springs plans include demolishing several existing buildings to provide space for an environmental education center and creating additional wetland habitat. Only ecosystem restoration measures will be

constructed at Black Fox. Funding was provided from FY95 thru FY02 for Master Plan, Design, and Construction on Murfree, Oaklands and Black Fox. The Oaklands Phase I and Murfree Springs Phase II contracts were awarded in Sep 01 and construction continued through FY02 and FY03. Construction at Black Fox was initiated in Oct 01 and completed in Dec 02. A supplement to the decision document was completed in May 02 and approved by the Assistant Secretary of the Army for Civil Works in Dec 02.

Local cooperation. The project authorization by WRDA 1996 and the City of Murfreesboro, TN is the local sponsor. Cost sharing is 75% Federal and 25% non-Federal. Real estate costs over 25% will be borne by the Federal Government.

Operations during fiscal year. FY03 appropriations were used to bring the Phase I Oaklands and Phase II Murfree contracts to 99% completion. Design of Oaklands Phase II and Murfree Phase III and the interpretive features was also initiated.

9. HAMILTON COUNTY STREAMBANK STABILIZATION, TN

Location. The project is on the Tennessee River, in central Chattanooga, TN from approximate river mile 464 to 468. The bank stabilization consists of stone protection at 5 sites along this reach of the river.

Existing project: High floodwaters have caused slope failures and erosion along both previously protected and unprotected areas of the riverbank. Endangered facilities include a large interceptor sewer line (which serves a major portion of North Chattanooga), riverwalk trails, observation decks, fishing piers, drain pipes, ramps, power poles, roads, bridge abutments and parks/recreation facilities. Streambank protection is stone armament using graded limestone (referred to as "riprap").

Local cooperation: WRDA of 1996 authorized \$7.5 M (Federal) for Streambank Stabilization. Hamilton County is the project's sponsor; the City of Chattanooga is also sponsoring the project through a separate agreement with Hamilton County. Chattanooga and Hamilton County provided funding to initiate a feasibility study in FY 97 (\$150K) under our Work for Others Program. This information was the basis for development of the decision document called a Detailed Project Report (DPR). Congress appropriated \$6.0M through \$1.5M increments each for FY 98 through FY 01. The Corps has received \$4.23M in Federal funds during this time and has expended \$4.1M through September 03. We have prepared a Detailed Project Report (DPR) and Environmental Assessment (EA), executed a Project Cooperation Agreement (PCA) and completed construction on 4-1/2 of 5 sites. Sites 1 through 4 (Coolidge Park, Heritage Landing and Manker Patten to Curtis Pole Road) were completed in 2000. Construction was completed on the lower two-thirds of Site 5 - Rivermont Park to Crutchfield Bar during FY 2002.

NASHVILLE, TN DISTRICT

Operations during fiscal year: The City of Chattanooga Public Works acquired final easements and the construction contract was awarded during FY03.

10. MARTINS FORK LAKE, KY

Location. Dam located at mile 15.6 on Martins Fork of Clover Fork, Cumberland River, about 10 miles southeast of city of Harlan, with reservoir extending about 6 miles upstream within Harlan County, southeastern Kentucky.

Existing project. Multiple-purpose improvement Combining flood control with water quality control and recreation development adopted by 1965 Flood Control Act (H.Doc. 244, 89th Cong.), in general accordance with recommendations. Dam is concrete type, 504 feet long and rising 97 feet above streambed. Outlet works provide for release of water from reservoir at varying levels. Drainage area above damsite is 55.7 square miles. At full pool level, spillway crest at elevation 1341 above mean sea level, reservoir will cover 578 acres and contain 21,120 acre-feet of storage capacity. Provision is made for 17,450 acre-feet of reservoir capacity between elevations 1341 and 1300 for control of floods in winter and spring season, and 14,360 acre-feet (El. 1341-1310) during summer and fall, in conjunction with which storage of 3,090 acre-feet would be available on a seasonal basis to meet streamflow requirements for water quality control and fish life below the dam. A minimum permanent pool of 3,670 acre-feet, 274 acres in extent, is available during the potential flood seasons; and during late spring and summer when flood storage can be reduced, the lake is operated generally at a higher level (El. 1310) to maintain a larger surface area of 340 acres for recreation and provide the required seasonal storage for releases of water during critical low-flow periods. Project prevents a major portion of average annual flood losses at Harlan and results in significant stage reductions with related benefits along rural reaches and to other urban areas downstream. Actual cost of project including \$95,000 code 710 funds is \$20,479,911. First construction contract awarded in December 1972. Project completed for beneficial use in September 1978.

Local cooperation. Federal Water Project Recreation Act of 1965 (P.L. 89-72) applies in regard to non-Federal participation in recreation development, in addition to which local interests are to provide certain safeguards to ensure functioning of reservoir as intended. In May 1981 a final recreation cost-sharing contract with Harlan County was approved and certain recreation facilities have been jointly developed by the Corps and the County. These facilities, consisting of a swimming beach and a picnic area are now operated and maintained by Harlan County. Recreation investment to date (Corps and Local) is about \$100,000.

Operations during fiscal year. New work: None. Maintenance: Only routine maintenance.

11. MIDDLESBORO, CUMBERLAND RIVER BASIN, KY

Location. At Middlesboro, Ky., on Yellow Creek, a tributary entering Cumberland River about 660 miles above its mouth.

Existing project. A system of canals and levees around one side of town, arranged so as to divert most headwaters of Yellow Creek away from present channel through heart of city. Protection is thus afforded in large measure to life and property within business district and a large part of residential section. For project details, see page 1088 of Annual Report for 1962.

Local cooperation. None required.

Operations during fiscal year. New work: None. Maintenance: Only routine maintenance.

12. TUG AND LEVISA FORKS OF THE BIG SANDY RIVER AND UPPER CUMBERLAND, WV, VA AND KY

Location. The project is located in the State of West Virginia and the Commonwealths of Kentucky and Virginia. The Cumberland portion consists of the Upper Cumberland River Basin, above Cumberland Falls, KY. The basin is approximately 100 miles in length, averaging 30 miles in width at the lower portion and 10 miles in width upstream at Harlan KY. The Big Sandy Basin is within the Huntington District and the Cumberland within the Nashville District.

Existing project. Provides for flood control measures for communities in the Tug and Levisa Forks and Upper Cumberland River Basins. The Cumberland portion has been assigned to the Nashville District. Only activities of the Nashville District are reported herein. Estimated Federal cost of new work under jurisdiction of the Nashville District is \$474,616,000. The project was authorized by the Energy and Water Development Appropriation Act of 1981, Section 202 of PL 96-367.

Local cooperation. Flood protection cost for Williamsburg, Middlesborough and Clover Fork, KY are shared with their sponsors in accordance with provisions defined by WRDA, 1986. The sponsor has responsibility to operate and maintain such works upon completion of construction.

Operations during fiscal year. Project construction at Middlesborough is near completion. Nonstructural evacuations and floodproofings continued at the communities along the Clover Fork of the Cumberland River.

13. OHIO RIVER BASIN (NASHVILLE DISTRICT)

Location. A series of levees, floodwalls, channel improvements, and reservoirs in Ohio River Basin within Nashville District.

Existing project. The general comprehensive plans approved for flood control and other purposes in Ohio River Basin is set forth in legislation listed in Table 23-B. Individual projects, local protection projects and lakes,

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

considered in comprehensive plan within Nashville District are listed in Table 23-K.

14. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Flood Control Act of June 22, 1936, and subsequent acts, requires local interests furnish assurances they will maintain and operate certain local protection projects after completion in accordance with regulations prescribed by Secretary of the Army. District Engineers are responsible for administration of these regulations within their respective districts. Maintenance inspections were made during fiscal year of completed protective works in localities transferred to local interests for maintenance and operation. Local interests were advised, as necessary, of measures required to maintain projects in accordance with standards prescribed by regulations. Fiscal year cost was \$29,486. Total cost to September 30, 2003 was \$613,182. For project inspection data see table 23-M.

15. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Flood control and coastal emergencies (Public Law 99, 84th Cong., and antecedent legislation). Actual Federal cost for the fiscal year was \$242,875 for disaster preparedness.

MULTIPLE-PURPOSE PROJECTS, INCLUDING POWER

16. CENTER HILL LAKE, OHIO RIVER BASIN, TN

Location. Dam is on Caney Fork River, 26.6 miles above its confluence with Cumberland River (mile 309.2) at Carthage, TN. It is in DeKalb County, TN., about 55 miles east of Nashville, and 14 miles southeast of Carthage, TN. Reservoir extends about 64 miles up main stream and about 10 miles up Falling Water River and lies within DeKalb, Putnam, White, and Warren Counties, TN.

Existing project. A combination earth and concrete gravity-type dam, hydroelectric powerplant, and reservoir for primary purposes of flood control and power production, with a permanent pool for public use and conservation purposes. In addition to main dam structure, provision was made for a rolled-earth dike to close a saddle in reservoir rim near damsite. For further details, see page 1099 of 1962 Annual Report. Actual cost of project including \$8,940,642 code 710 funds is \$53,412,022.

Local cooperation. None required on completed project. Recreation development subject to certain conditions of non-Federal cost-sharing under Federal Water Project Recreation Act of 1965.

Operations during fiscal year. New work: None. Maintenance: Dam was operated and structure and its appurtenance maintained as required. Operation of powerplant was continuous except for normal interruptions and necessary shutdowns for inspection and maintenance purposes. Total

sales energy generated (455,057,100 kw-hr) was made available through the Southeastern Power Association to Tennessee Valley Authority for distribution. Activities under reservoir management involved land management, public relations, and maintenance of public use facilities. Operations and Maintenance work included continued investigation of leakage through the rim of the dam. A major rehab study of the power plant was continued.

Dam Safety: No funds were expended during FY03.

17. DALE HOLLOW LAKE, OHIO RIVER BASIN, TN AND KY

Location. Dam is on Obey River, 7.3 miles above its confluence with Cumberland River (mile 380.9) at Celina, TN. It is in Clay County, TN, and about 80 miles northeast of Nashville, TN 28 miles north of Cookeville, TN, and 3 miles east of Celina, TN. Reservoir extends about 51 miles up main stream, 10 miles up East Fork, and 6 miles up West Fork of Obey River, and lies within Cumberland and Clinton Counties, KY, and Clay, Pickett, Overton, and Fentress Counties, TN.

Existing project. A concrete gravity-type dam, hydroelectric powerplant, and reservoir for primary purposes of flood control and power production with a permanent pool for public use and conservation purposes. See page 1096 of 1962 Annual Report for project details. Cost of project including \$2,195,600 code 710 funds and \$150,000 non-Federal funds recreation facilities under the completed projects program is \$28,317,746.

Local cooperation. None required on completed project; future recreation development subject to certain conditions of non-Federal cost-sharing under Federal Water Project Recreation Act of 1965.

Operations during fiscal year. New work: None. Maintenance: Dam was operated and structures and appurtenances maintained as required. Operation of powerplant was continuous except for normal interruptions and necessary shutdowns for inspection and maintenance purposes. Total sales energy generated (154,396,000 kw-hr) was made available through the Southeastern Power Association to Tennessee Valley Authority for distribution. Activities under reservoir management program involved public relations, and management and maintenance of public-use facilities. The bearing blocks on the bridge over the dam were repaired.

18. J. PERCY PRIEST DAM AND RESERVOIR, OHIO, RIVER BASIN, TN

Location. Damsite is on Stones River, 6.8 miles above its confluence with Cumberland River (mile 205.9); in Davidson County, TN.; and about 7 miles east of Nashville, TN. Reservoir extends southeasterly from dam about 32 miles along main stream, 10 miles up East Fork, 6.5 miles up West Fork, and for shorter distances up other tributaries of Stones

NASHVILLE, TN DISTRICT

River; and lies within Davidson, Rutherford, and Wilson Counties, TN.

Existing project. A combination earth and concrete gravity-type dam, hydroelectric powerplant, and reservoir for primary purposes of flood control, power production and recreation. For further details see page 703 of 1969 Annual Report. Cost of project including \$3,260,400 under code 710 funds and \$46,000 non-Federal funds for recreation facilities under the completed projects program is \$56,914,039.

Local cooperation. Recreation development subject to certain conditions of non-Federal cost-sharing under Federal Water Project Recreation Act of 1965.

Operations during fiscal year. New work: None.

Maintenance: Dam was operated and structures and appurtenances maintained as required. Total sales energy generated (90,140,800 kw-hr) was made available through Southeastern Power Association to Tennessee Valley Authority for distribution. Activities under reservoir management program involved public relations, fish and wildlife management, and maintenance of public-use facilities.

19. LAUREL RIVER LAKE, OHIO RIVER BASIN, KY

Location. Damsite is at mile 2.3 on Laurel River, a tributary of Cumberland River, in south-central Kentucky. The two streams meet about 9 miles below Cumberland Falls, a prominent physiographic feature at head of Lake Cumberland, which is formed by Wolf Creek Dam. Reservoir extends 19.2 miles upstream to site of Corbin, KY water-supply dam and lies within Laurel and Whitley Counties.

Existing project. Project approved in general accordance with recommendations of House Document 413, 86th Congress, by 1960 Flood Control Act, as amended by Public Law 88-253, was designed for purposes of flood control, power, and recreation as an integral unit of a coordinated plan for development of water resources of Cumberland River Basin. With the view of net gain in power potential on a system basis, the plan of improvement incorporated appropriate flood control storage in the proposed project and corresponding adjustment in operations of Wolf Creek Dam - Lake Cumberland for flood control and power, which in effect constituted a transfer of reservoir capacity without entailing a change in flood control benefits. Further detailed study giving full consideration to power capabilities and marketing arrangements indicated the advantage of maintaining present storage allocation at Wolf Creek and use of all available storage capacity of Laurel River Lake for power. The power plant is complete. Recreation was completed in FY 1986. Total cost is \$56,741,232.

Local cooperation. None required.

Operations during fiscal year. New work: None.

Maintenance: Dam was operated and structures and Appurtenances maintained as required. Total sales energy generated (90,762,000 kw-hr) was made available through Southeastern Power Association for distribution.

20. WOLF CREEK DAM - LAKE CUMBERLAND, OHIO RIVER BASIN, KY

Location. Wolf Creek Dam is on Cumberland River at mile 460.0 (above mouth) in Russell County, KY, about 10 miles southwest of Jamestown and 12 miles north of Albany, KY. Lake Cumberland extends 101 miles up main stream, 48 miles up South Fork of Cumberland River, in Russell, Clinton, Wayne, Pulaski, McCreary, Laurel, and Whitley Counties, KY.

Existing project. A combination earth and concrete gravity-type dam, hydroelectric powerplant, and reservoir for primary purposes of flood control and power production, with a permanent pool for public-use and conservation purposes. See page 1094 of 1962 Annual Report for project details. Cost of project is \$188,267,195. This cost includes \$3,259,372 code 710 funds, \$880,000 non-Federal funds for recreation facilities under the completed pro-gram, and \$104,999,237 for major rehabilitation. WRDA 96 authorized an Uprate Project of the hydroelectric power-plant. Activity involving the integrity of the structure began in 1968 when a leak or seepage developed in the embankment. The major rehab embankment contract was physically completed in September 1982.

Local cooperation. None required on completed project; future recreation development subject to certain conditions of non-Federal cost-sharing under Federal Water Project Recreation Act of 1965.

Operations during fiscal year. New work: None.

Maintenance: Dam was operated and structures and appurtenances maintained as required. Operation of powerplant was continuous except for normal interruptions and necessary shutdowns for inspection and maintenance purposes. Total sales energy generated (1,202,993,000 kw-hr) was made available through Southeastern Power Association to Tennessee Valley Authority for distribution. Activities under reservoir management program involved land management activities, public relations, and maintenance of public-use facilities. Operations and Maintenance work included investigation of seepage through the dam. Improvements were made to five launching ramps in Wayne County. Fabrication began on floating plant for removal of debris. Work was begun for facility protection improvements at the dam. A major rehab study of the power plant was continued.

GENERAL INVESTIGATIONS

21. SURVEYS

Costs for this period were \$788,422 for which \$319,077 was for Navigation Studies, \$86,876 for Flood Damage Prevention Studies, \$271,503 for Special Studies, \$62,948 for Miscellaneous Activities and \$48,018 for Coordination With Other Agencies and Non-Federal Interests.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

22. COLLECTION AND STUDY OF BASIC DATA

Costs for this period were \$81,020, for which \$72,992 was for Floodplain Management Services and \$8,028 for General Hydrologic studies.

23. PRECONSTRUCTION ENGINEERING AND DESIGN

Costs for this period were \$2,877,499 for Navigation Projects (\$2,877,599 for Chickamauga Lock, TN and (\$100) for Kentucky Lock, KY).

NASHVILLE, TN, DISTRICT

TABLE 23-A COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total to Sept 30, 2003
1. Cumberland River TN and KY	New Work						
	Approp.						320,252,240 ^{1, 2, 3}
	Cost	-	-	-	-	-	320,252,240 ^{1, 2, 3}
	Maint.						
	Approp.	24,297,555	26,539,201	28,394,07	26,262,011	571,296,772 ⁴	
	Cost	24,277,115	26,044,500	23,494,463	26,387,012	565,934,239 ⁵	
2. Kentucky Lock TN and KY	New Work						
	Approp.	19,250,000	24,142,000	19,684,000	23,003,900	111,745,900	
	Cost	18,725,705	24,395,456	20,456,766	23,024,115	111,684,624	
3. Tennessee River, TN, AL, and KY	New Work						
	Approp.	-	-	-	-	16,251,428 ⁶	
	Cost	-	-	-	-	16,251,428 ⁶	
	Maint.						
	Approp.	16,592,069	14,254,767	15,151,046	13,277,710	343,811,804 ⁷	
	Cost	16,888,421	13,918,383	15,419,213	13,268,874	343,745,810 ⁸	
	Rehab.						
	Approp.	-	-	-	-	400,000	
	Cost	-	-	-	-	400,000	
4. Tenn.-Tombigbee Waterway, AL and MS	New Work						
	Approp.	0	0	0	0	749,013,050	
	Cost	0	0	0	0	749,013,050	
7. Big South Fork National River and Rec. Area, KY and TN	New Work						
	Approp.	0	0	0	0	112,588,920 ⁹	
	Cost	47,169	791	4,241	0	112,577,899 ¹⁰	
8. Black Fox/Oaklands Springs, TN	New Work						
	Approp.	1,677,000	1,676,000	1,680,700	1,596,000	8,955,700	
	Cost	538,451	1,248,025	3,189,928	2,115,739	8,495,465	
9. Hamilton County, TN	New Work						
	Approp.	1,503,250	1,257,076	478,600	126,057	5,953,464 ¹¹	
	Cost	2,803,955	398,909	1,316,483	295,310	5,487,400 ¹²	
10. Martins Fork Lake, KY	New Work						
	Approp.	-	-	-	-	20,479,911	
	Cost	-	-	-	-	20,479,911	
	Maint.						
	Approp.	773,500	654,465	711,151	639,000	14,238,456	
	Cost	680,231	650,909	707,523	644,206	14,235,701	
11. Middlesboro, Cumberland River Basin, KY	New Work						
	Approp.	-	-	-	-	817,830 ¹³	
	Cost	-	-	-	-	817,830 ¹³	
	Maint.						
	Approp.	61,500	71,785	50,000	50,000	2,638,451	
	Cost	60,362	72,822	49,521	50,580	2,638,451	
12. Tug & Levisa Forks of the Big Sandy & Cumber- land River, WV, VA and KY	New Work						
	Approp.	10,736,710	12,011,300	7,456,940	10,664,000	375,604,775 ¹⁴	
	Cost	16,035,961	11,490,106	8,042,451	7,267,696	369,298,293 ¹⁵	
16. Center Hill Lake, Ohio River Basin, TN	New Work						
	Approp.	-	-	-	-	53,412,022 ¹⁶	
	Cost	-	-	-	-	53,412,022 ¹⁷	
	Maint.						
	Approp.	4,974,200	5,629,947	4,993,828	5,241,000	120,089,851 ¹⁸	
	Cost	4,918,695	5,678,972	4,977,694	5,127,370	119,913,229 ¹⁹	

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 23-A (continued)

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY00	FY01	FY02	FY03	Total to Sept 30, 2003
17. Dale Hollow Lake Ohio River Basin, TN and KY	New Work						
	Approp.	-	-	-	-	-	28,317,746 ²⁰
	Cost	-	-	-	-	-	28,317,746 ²¹
	Maint.						
	Approp.	4,436,000	4,111,988	4,744,947	4,433,000		104,883,962 ²²
	Cost	4,436,057	4,117,903	4,533,147	4,543,553		104,782,593 ²³
18. J. Percy Priest Dam and Reservoir, Ohio River Basin, TN	New Work						
	Approp.	-	-	-	-	-	56,914,039 ²⁴
	Cost	-	-	-	-	-	56,914,039 ²⁵
	Maint.						
	Approp.	3,403,000	4,127,951	3,526,812	3,503,000		82,558,414 ²⁶
	Cost	3,415,921	4,127,844	3,467,542	3,533,964		82,529,997 ²⁷
19. Laurel River Lake, Ohio River Basin, KY	New Work						
	Approp.	-	-	-	-	-	56,741,232
	Cost	-	-	-	-	-	56,741,232
	Maint.						
	Approp.	1,793,000	1,262,082	1,362,474	1,354,000		27,797,499 ²⁸
	Cost	1,788,169	1,283,774	1,356,396	1,341,716		27,775,656 ²⁹
20. Wolf Creek Dam and Lake Cumberland, Ohio River Basin, KY	New Work						
	Approp.	-	-	-	-	-	83,267,958 ³⁰
	Cost						83,267,958 ³⁰
	Maint.						
	Approp.	5,861,287	6,478,330	7,931,009	8,007,000		155,115,809 ³⁰
	Cost	5,903,414	6,491,179	6,328,153	7,617,889		152,882,814 ³¹
	Rehab.						
	Approp	-	-	-	-	-	104,999,237 ³²
	Cost						104,999,237 ³²

1. Includes \$9,707,354 for abandoned and/or replaced works under the old Cumberland River system. (Amount includes \$826,253 for new work and \$3,266,706 for maintenance on previous project.)

2. Includes \$61,733 public works acceleration funds, and \$102,966 contributed by the State of Kentucky and \$6,750 contributed by metropolitan Nashville, TN.

3. Includes \$298,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

4. Includes \$955,889 for special recreation use fees, and \$2,628,257 for maintenance and operation of dams and other improvements of navigable waters, and \$1,892,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

5. Includes \$955,889 for special recreation use fees, and \$2,628,257 for maintenance and operation of dams and other improvements of navigable waters, and \$1,892,000 funds provided

6. Includes \$14,007,193 for new work and excludes \$4,005,175 for maintenance on previous projects.

7. Includes \$495,763 for maintenance and operation of dams and other improvements of navigable waters, and \$764,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

8. Includes \$495,763 for maintenance and operation of dams and other improvements of navigable waters, and \$764,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

9. Includes \$300,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

10. Includes \$300,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

11. Includes \$1,363,331 contributed by Hamilton County, TN

12. Includes \$899,257 contributed by Hamilton County, TN

13. Includes \$33,876 Emergency Relief Funds.

14. Includes \$22,748,266 contributed by the State of Kentucky.

15. Includes \$22,100,033 contributed by the State of Kentucky.

16. Includes \$35,896 public works acceleration funds, and

TABLE 23-A
(continued)

COST AND FINANCIAL STATEMENT

\$148,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

17. Includes \$35,896 public works acceleration funds, and \$148,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

18. Includes \$292,280 funds for special recreation use fees, and \$1,083,678 for maintenance and operation of dams and other improvements of navigable waters, and \$91,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

19. Includes \$292,280 funds for special recreation use fees, and \$1,083,678 for maintenance and operation of dams and other improvements of navigable waters, and \$91,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

20. Includes \$51,789 public works funds and \$150,000 contributed by the State of Tennessee, and \$341,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

21. Includes \$51,789 public works funds and \$150,000 contributed by the State of Tennessee, and \$341,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

22. Includes \$339,480 funds for special recreation use fees, and \$1,083,678 for maintenance and operation of dams and other improvements of navigable waters, and \$482,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

23. Includes \$1,083,678 funds for special recreation use fees, and \$884,178 for maintenance and operation of dams and other improvements of navigable waters, and \$482,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

24. Includes \$46,000 contributed by the Metropolitan Government, Nashville, TN.

25. Includes \$46,000 contributed by the Metropolitan Government, Nashville, TN.

26. Includes \$260,680 for special recreation use fees, and \$1,226,978 for maintenance and operations of dams and other improvements of navigable waters, and \$40,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

27. Includes \$260,680 for special recreation use fees, and \$1,226,978 for maintenance and operations of dams and other improvements of navigable waters, and \$40,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

28. Includes \$66,678 for maintenance and operations of dams and other improvements of navigable waters.

29. Includes \$96,920 public works acceleration funds, and \$880,000 contributed by the State of Kentucky.

30. Includes \$82,048 public works acceleration funds, and \$198,578 for maintenance and operation of dams and other improvements of navigable waters, and \$278,780 funds for special recreation use fees, and \$293,000 fund provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

31. Includes \$82,048 public works acceleration funds, and

\$198,578 for maintenance and operation of dams and other improvements of navigable waters, and \$278,780 funds for special recreation use fees, and \$293,000 funds provided from the Productive Employment Appropriation Act (PL 98-8) of 1983.

32. Includes \$203,757 for claim paid on initial construction of switchyard.

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TABLE 23-B

AUTHORIZING LEGISLATION

See Section In Text	Date of Authorizing Act	Project and Work Authorized	Documents
1.	Jul 13, 1892	CUMBERLAND RIVER BELOW NASHVILLE Provision made for lock A	Annual Report, 1890, p. 2151
	Jun 25, 1910	Provision made for locks B to F, and for dredging below lock F.	H. Docs. 758, 60th Cong., 1st sess.; and 1481, 60th Cong., 2d sess.1
	Aug 30, 1935	Repairing dams A to F, inclusive, and surmounting same with movable crests	H. Doc. 38, 73d Cong., 1st sess.
	Jul 24, 1946	Provision of 9-foot channel by the construction of 3 moderate height dams below Nashville, via,	H. Doc. 761, 79th Cong., 2d sess.
	Jun 19, 1952	Kuttawa (Eureka), Dover, and Cheatham. Provision for hydroelectric power production as a function of Cheatham Dam.	
	Sep. 3, 1954	Construction of Barkley (Lower Cumberland) dam and reservoir project for navigation, flood control, hydroelectric power, and related purposes in lieu of Kuttawa and Dover navigation-only structures.	S. Doc 81, 83d Cong., 2d sess.
	Jul 14, 1960	Authorized change in alignment of Illinois Central	H. Doc. 56, 86th Cong., Railroad. 2d sess.
	Oct 12, 1996	Authorized construction of Kentucky Lock WRDA 96 for navigation only.	
1.	Aug. 5, 1886	CUMBERLAND RIVER ABOVE NASHVILLE Provision made for locks and dams; the Secretary of War to determine the final plan of improvement. Dimensions of the locks fixed in accordance with reports of Mar. 30, 1887, and Nov. 25, 1890.	Annual Report 1884, p. 1663 Annual Report 1888, p. 1622, and Annual Report 1892, p. 1933.
	Mar 2, 1907	Adoption of the report of the Board of Engineers, dated Feb. 26, 1906, limiting the lock and dam construction to locks and dams 1 to 7, and 21.	H. Doc. 699, 59th Cong., 1st sess.
	Mar 2, 1919	Provision made for locks and dams 8 to 17.	Rivers and Harbors Committee Doc. 10, 63d Cong., 2d sess.
	Jun 5, 1920	Authorizes work to proceed in Tennessee without waiting for action of local interests in Kentucky.	
	Jul 3, 1930	Raising dam 1, 3 feet.	Rivers and Harbors Committee Doc. 26, 70th Cong., 2d sess.
	Jun 26, 1934 ²	Operation and care of locks and dams provided for with funds from War Department appropriations for rivers and harbors.	
	Jul 24, 1946	Construction of Old Hickory, Cordell Hull (Carthage), and Celina Dams above Nashville for navigation and the development of power resources.	H. Doc. 761, 79th Cong., 2d sess.

NASHVILLE, TN DISTRICT

TABLE 23-B
(continued)

AUTHORIZING LEGISLATION

See Section In Text	Date of Authorizing Act	Project and Work Authorized	Documents
	Oct 1, 1980	Design and construct flood control measures for communities in the Upper Cumberland River basins.	Sec. 202, PL 96-367
	Oct 17, 1996	Authorized ecosystem restoration at three wetlands and historic sites in Murfreesboro, TN.	WRDA 96
	Oct 12, 1996	Authorized hydropower update at Wolf Creek Dam	WRDA 96
3.		TENNESSEE RIVER	
	Jul 3, 1930	Authorized navigable depth of 9 feet from mouth about 650 miles to Knoxville, Tennessee to be obtained by construction of low dams.	H. Doc. 328, 71st Cong., 2d sess.
	May 18, 1933	Authorized TVA to construct such dams in the Tennessee River as will provide a 9 foot channel.	
	Oct 12, 1996	Authorized flood damage reduction by nonstructural methods in Hamilton County, TN.	WRDA 96
	Oct 12, 1996	Authorized a study for a bank stabilization project on the Tennessee River in Hamilton County, TN.	WRDA 96
	Oct 12, 1996	Authorized assistance to non-Federal interests for environmental activities in Jackson County, AL.	WRDA 96
13.		OHIO RIVER BASIN, NASHVILLE DISTRICT	
	Aug 28, 1937	Construct levees, floodwalls, and drainage structures for protection of cities and towns in Ohio River Basin. Project to be selected by Chief of Engineers with approval of Secretary of War at a cost not to exceed \$24,877,000 for construction.	Flood Control Committee Doc. 1, 5th Cong., 1st sess.
	Jun 28, 1938	Approved general comprehensive plan for flood control and other purposes in Ohio River Basin as may be advisable at discretion of Secretary of War and Chief of Engineers and for initiation and partial accomplishment of plan, authorized \$75million for reservoirs and \$50,300,000 for local flood protection works.	Flood Control Committee Doc. 761, 75th Cong., 3d sess.
	Aug 18, 1941	Additional \$45 million for prosecution of comprehensive plan for Ohio River Basin.	
	Dec 22, 1944	Additional \$70 million for further prosecution of comprehensive plan for Ohio River Basin.	H. Doc. 762, 77th Cong., 2d sess.
	Jul 24, 1946	Additional \$125 million for further prosecution of comprehensive plan.	H. Doc. 506, 78th Cong., 1st sess.
	May 17, 1950	Additional \$100 million for prosecution of comprehensive plan for Ohio River Basin.	
	Dec 30, 1963	Additional \$150 million for further prosecution of comprehensive plan for flood control and other purpose in Ohio River Basin.	

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 23-B **AUTHORIZING LELGISLATION**
(continued)

See Section In Text	Date of Authorizing Act	Project and Work Authorized	Documents
	Jun 18, 1965	Additional \$89 million for further prosecution of comprehensive plan for Ohio River Basin.	H. Doc. 6755, 89th Cong., 1st sess.
	Aug 13, 1968	Additional \$35 million for further prosecution of comprehensive plan for Ohio River Basin.	S. 3710, 90th Cong., 2d sess.
	Jun 19, 1970	Additional \$69 million for further prosecution of comprehensive plan for Ohio River Basin.	H. R. 15166 91st Cong., 2d sess.
	Mar 7, 1974	Authorized Big South Fork National River and Recreation Area, KY and TN. Total area not to exceed 125,000 acres.	H. R. 10203 93rd Cong. Water Resources Develop. Act of 1974 Amended by PL 94-587, 94th Cong.
	Mar 7, 1974	Additional \$120 million for further prosecution of comprehensive plan for Ohio River Basin.	H. R. 10203 93rd Cong. River Basin Monetary Authorization Act of 1974.
4.		TENNESSEE-TOMBIGBEE WATERWAY	
	Jul 24, 1946	Construction of waterway to connect above rivers and provide a 9 foot channel and minimum bottom width of 170 feet in river and canal sections and 150 feet in the divide cut, with locks 110 by 600 feet clear inside dimensions.	H. Doc. 486, 79th Cong. 2d sess.
		Subsequent studies determined most practical plan consists of channel with bottom width of 300 feet (280 feet in divide cut), fewer locks with higher lifts resulted in reducing number of lifts from 18 to 10 and reduced length from 260 to 253 miles.	Page 1343, Part I, FY 1968 House Hearings

1. Contains latest published maps. Included in Public Works Administration Program Sept. 6, 1993.
2. Permanent Appropriation Repeal Act.

NASHVILLE, TN DISTRICT

TABLE 23-C **OTHER AUTHORIZED NAVIGATION PROJECTS**
(All Projects not Specifically Identified in Text)

Project	Status	For last Full Report see Annual Report	<u>Cost to Sept, 2003</u>	
			Construction	Operation and Maintenance
Caney Fork River, TN	abandoned	1895	\$ 27,828	-
Clinch River, TN and VA	abandoned	1923	53,949	7,873
Duck River, TN	abandoned	1887	13,000	-
Elk River, AL and TN	abandoned	1904	4,000	-
French Broad and Little Pigeon Rivers, TN	abandoned	1931	249,605	33,554
Holston River, TN	abandoned	1911	5,714	-
Little Tennessee River, TN	abandoned	1888	5,510	-
Obey River, TN	abandoned	1887	11,500	-
Red River, TN	abandoned	1884	5,000	-
South Fork of Cumberland River, KY	abandoned	1892	11,967	-

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 23-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS
(All Projects not Specifically Identified in Text)

Project	Status	For last Full Report see Annual Report	Cost to Sept, 2003	
			Construction	Operation & Maintenance
Barbourville, KY	completed	1963	\$2,088,147	-
Coal Creek and Tributaries (Lake City), TN	completed	1962	460,134	-
Corbin (Lynn Camp Creek), KY	completed	1969	567,703	-
Middlesboro (Yellow Creek), KY	completed	1949	26,309	-
Paint Rock River, AL	completed	1967	544,173	-
Pineville, KY	completed	1963	1,679,126	-

1. Includes 9,950 contributed in funds.

TABLE 23-F OTHER AUTHORIZED MULTIPLE-PURPOSE PROJECTS
(Including Power)

Project	Status	For last Full Report see Annual Report	Cost to Sept, 2003	
			Construction	Operation and Maintenance
Barkley Dam and Lake Barkley, KY and TN	beneficial use	-	\$162,056,539 ¹	\$183,193,485 ²
Celina Dam, KY	inactive	-	222,575	-
Cheatham Lock and Dam, TN	beneficial use	-	31,682,762	133,718,385 ²
Cordell Hull Lock and Dam, TN	beneficial use	-	79,874,492	93,967,456 ²
Old Hickory Lock and Dam, TN	beneficial use	-	52,266,412	155,054,944 ²

1. Includes \$15,557,895 cost for Cross Creek.

2. Details given under "Cumberland River, TN and KY "
 See Table 23-H

NASHVILLE, TN DISTRICT

TABLE 23-G

DEAUTHORIZED PROJECTS

Project	Status	For last full report see Annual Report	Cost to Sept, 2003	
			Construction	Operation & Maintenance
Three Islands Reservoir, Ohio River Basin, TN	1970	Authorized: FC Act 1938, PL 761, 75 Cong., 3rd sess.; FC Act 1946, PL 525, 79th Cong., 2d sess. Deauthorized: 5 Aug 1977.	\$111,855	-
Middlesboro, Yellow Creek Bell County, KY	-	Authorized: FC Act, Dec 22, 1944, PL 534, 78th Congress. Deauthorized: 17 Oct 1986. Water Resources Development Act of 1986, PL 99-662, 99th Cong., 2d sess.	-	-
Cumberland River above Nashville, TN	-	Authorized: River & Harbor Act, Aug 5, 1886. Deauthorized: 17 Oct 1986. Water Resources Development Act of 1986, PL 99-662, 99th Cong., 2d sess.	-	-
Hiwassee River, Polk and Bradley Counties, TN	1923	Authorized: River & Harbor Act Aug 14, 1876. Deauthorized: 17 Oct 1986. Water Resources Development Act of 1986, PL 99-662, 99th Cong., 2d sess.	123,065	-
Rossvie Lake, Tennessee and Kentucky	-	Authorized: FC Act, Jan 28, 1938, PL 761 75th Congress. Deauthorized: 17 Oct 1986. Water Resources Development Act of 1986, PL 99-662, 99th Cong., 2d sess.	6,779	-
Celina Lake, Kentucky and Tennessee		Authorized: Rivers and harbors Act of 1946. PL 79-522. Deauthorized: July 9, 1995, Section 1001 (B) (2) of PL 99-662.		

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 23-H CUMBERLAND RIVER, TN AND KY: PRINCIPAL FEATURES
(See Section 1 of Text)

Nearest town	Kuttawa, KY 11 miles.	Ashland City, TN 9 miles	Old Hickory, TN 3 miles	Carthage, TN 5 miles
Miles above mouth of river	30.6	148.7	216.2	313.5
Lock dimensions (feet)1	110 by 800	110 by 800	84 by 400	84 by 400
Lift at normal pool levels (feet)	57	26	60	59
Depths on guard-sills at minimum pool levels (feet)	11, upper; 13, lower	14, upper; 17, lower	14, upper; 13, lower	14, upper; 13, lower
Character of foundation	Rock	Rock	Rock	Rock
Dam:				
Type	Concrete gravity and earthfill	Concrete gravity	Concrete gravity and earthfill	Concrete gravity and earthfill
Height	157	75	98	93
Length, exclusive of lock section (feet)	9,959	800	3,605 ²	1,138 ²
Spillway:				
Gross length (feet)	804	480	325	291
Net length opening (feet)	660	420	270	225
Crest gates:				
Type	Tainter	Tainter	Tainter	Tainter
Number	12	7	6	5
Size (feet)	55 by 60	60 by 27	45 by 41	45 by 41
Operating levels at dam (feet, mean sea level):				
Maximum regulated	375	-	450 ³	508 ³
Normal operation:				
Full pool	359	385	-	508
Minimum pool	354	382	-	501
Minimum pool in advance of floods	346	-	442	499
Reservoir area (acres)	93,430	7,450	27,450	13,920
Reservoir capacity (acre-feet):				
Flood control	1,213,000 ^{3,4}	-	125,000 ⁵	85,600 ^{5,6}
Power drawdown	259,000	19,800 ⁷	63,000	20,500
Dead storage	610,000	84,200	357,000	204,800
Total	2,082,00	104,000	545,000	310,900
Canal:				
Length (mile)	1.75	-	-	-
Bottom width (feet)	400	-	-	-
Depth a minimum pool Level (feet)	11	-	-	-
Power Development				
Number of units	4	3	4	3
Generator rating (kilowatts)	32,500	12,000	25,000	33,333
Total installation (kilowatts)	130,000	36,000	100,000	100,000
Percent of project completion				
Year opened to navigation	1964	1952	1952	1973
Cost ⁹	\$ 162,056,571 ¹⁰	\$31,682,762	\$52,266,412	\$79,874,492

TABLE 23-H
(continued)

CUMBERLAND RIVER, TN AND KY: PRINCIPAL FEATURES
(See Section 1 of Text)

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. Clear width and length available for full width. 2. Exclusive of lock section. 3. Surcharge. 4. Normal operation (elv. 375-359) during nonflood season; flood control allowance to be increased to 1,472,000 acre-feet (elev. 375-354) during season of major floodflows. 5. Surcharge storage. 6. During flood season (3lev. 508-501); minimum 51,800 acre-feet (elev. 508-504) with normal operation during non-flood season. | <ol style="list-style-type: none"> 7. Daily pondage allowance; run-of-river project. 8. Completed for full beneficial use. 9. Includes recreation facility costs. 10. Includes \$15,557,895 cost for Cross Creek. |
|---|---|

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 23-I

**TENNESSEE RIVER
(SEE SECTION 3 OF TEXT)**

Lift Dimensions

Project¹	Miles Above Mouth	Miles from Nearest Town	Width of Cham- ber (feet)	Length Avail- able for Full Width (feet)	Lift		Minimum on Guard Sills		Character of Foundation	Year Opened Navi- gation	Kind of Dam	Type of Construction	Cost of Each Lock and Dam
					Nor- mal (feet)	Maxi- mum (feet)	Lower (feet)	Upper (feet)					
Kentucky	22.4	0.5 above Gilbertsville, KY	110	600	56	73.3	12.7	11.0	Limestone	1942	Fixed	Concrete and earthfill	2
Pickwick Landing:													
Auxiliary lock	206.7	4.4 above Hamburg, TN	110	600	55	63.0	12.8	10.0	Limestone	1937	Fixed	Concrete and earthfill	3
Main lock	206.7	4.4 above Hamburg, TN	110	1000	55	63.0	12.8	10.0	Limestone	1984	Fixed	Concrete and earthfill	3
Wilson:													
Auxiliary lock	259.4	2.9 above Florence, AL	60	292 300	94	100.0	11.0 ⁴	11.2	Limestone	1927	Fixed	Concrete and earthfill	\$46,973,540 ⁵
Main lock	259.4	2.9 above Florence, AL	110	600	94	100.0	13.0	13.0	Limestone	1959	-	-	7
General Joe Wheeler:													
Auxiliary lock	274.9	18.4 above Florence, AL	60	400	48	51.5	13.2	14.7	Limestone	1934	Fixed	Concrete and earthfill	1,796,295 ⁶
Main lock	274.9	18.4 above Florence, AL	110	600	48	51.5	13.0	13.0	Limestone	1963	Fixed	Concrete and earthfill	7
Guntersville:													
Auxiliary lock	349.0	9.1 below Guntersville, AL	60	360	39	45.0	11.8	13.0	Limestone	1937	Fixed	-	3 & 7
Main lock	349.0	9.1 below Guntersville, AL	110	600	39	45.0	12.7	13.0	Limestone	1965	Fixed	Concrete and earthfill	7
Nickajack:													
Auxiliary lock	424.7	39.4 below Chattanooga, TN	110	600	39	41.0	13.0	13.0	Limestone	1967	Fixed	Concrete	7
Main lock	424.7	39.4 below Chattanooga, TN	110	800	39	41.0	13.0	13.0	Limestone		Fixed	Concrete	7
Chickamauga	471.0	6.9 above Chattanooga, TN	60	360	49	53.0	13.0	10.0	Limestone	1939	Fixed	-	3 & 7
Watts Bar	529.9	6.8 above Breedenton, TN	60	360	58	70.0	11.8	12.0	Shale	1941	Fixed	Concrete and earthfill	3
Fort Loudon	602.3	1.3 above Lenoir City, TN	60	360	72	80.0	11.8	12.0	Limestone	1943	Fixed	Concrete and earthfill	3
Melton Hill (Clinch R.)	23.1	22.1 above Kingston, TN	75	400	54	60.0	13.0	13.0	Limestone	1963	Fixed	Concrete	2

TABLE 23-I
(continued)

TENNESSEE RIVER
(SEE SECTION 3 OF TEXT)

1. H. Doc 328, 71 Cong., 2d sess, contains table, pp. 98 and 99, giving pertinent information concerning low dams contemplated under 1930 project. Annual Report for 1938, pp. 1218 and 1219, contains similar information pertaining to low dams in addition to existing locks and dams, including those constructed or under construction by Tennessee Valley Authority.
2. Lock and dam constructed by Tennessee Valley Authority.
3. Lock and dam constructed by Tennessee Valley Authority.
Design for lock prepared with Corps forces and funds.
4. Tailwater in canal; flight of 2 locks.
5. Constructed by the Corps under authority of sec. 124, National Defense Act of June 3, 1916, (H. Doc. 1262, 64th Cong., 1st sess.).
Actual cost of lock and dam.
6. Actual cost of lock only as constructed by the Corps; dams constructed by Tennessee Valley Authority.
7. Constructed by Tennessee Valley

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 23-J **TENNESSEE RIVER, TN, AL, AND KY**
TOTAL COST OF EXISTING PROJECTS TO SEPT 30, 2003
(See Section 3 of Text)

Funds	New Work	Channel Maintenance	Operation & Maintenance	Total
Regular	\$2,244,236 ^{1,2}	\$15,102,641	\$338,724,913	\$356,071,790
Maintenance	-	-	11,665	11,665
Increase of compensation rivers and harbors, 1919 (certified claims)	-	5	-	5
Total	\$2,244,236 ^{1,2}	\$15,102,646	\$338,736,578	\$356,083,460

1. In addition, surplus property valued at \$54,336 was transferred from the project without reimbursement. Excludes \$4,005,175 expended between 18900 and June 30,1935, on operation and care of works of improvement under provisions of appropriation for such purposes.
2. Excludes \$14,007,192 previous construction cost.

TABLE 23-K **OHIO RIVER BASIN (NASHVILLE DISTRICT)**
LOCAL PROTECTION PROJECTS

Location	Type of Protection	Federal	Estimated Cost Non-Federal	Total
Cumberland, KY	Channel Improvement	\$520,000	\$240,000	\$760,000 ¹

TABLE 23-L **RESERVOIRS**

Tributary Basin and Reservoir	Stream	Total Federal Cost
Center Hill Lake	Caney Fork	\$53,412,022 ¹
Dale Hollow Lake, TN and KY	Obey River	28,167,746 ^{1,2}
J. Percy Priest Dam & Reservoir, TN	Stones River	56,868,039 ^{1,3,4}
Laurel River Lake, KY	Laurel River	56,741,232 ⁵
Martins Fork Lake, KY	Martins Fork	20,479,911

1. Details of this project are in individual report.

2. Excludes \$150,000 contributed by the State of Tennessee.

3. Excludes \$46,000 contributed by Metro Gov't of Nashville, TN.

4. Formerly Stewarts Ferry Reservoir.

5. See "Other authorized multiple-purpose projects."

NASHVILLE, TN DISTRICT

TABLE 23-M INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS
(See Section 14 of Text)

Project	Date of Inspection
Barbourville, KY	May 20, 2003
Corbin, KY	May 19, 2003
Harlan, KY	May 22, 2003
Middlesboro, KY (Yellow Creek)	May 22, 2003
Middlesboro, KY (Diversion Canal)	May 22, 2003
Pineville, KY	May 21, 2003
Wallsend, KY	May 21, 2003
Williamsburg, KY	May 19, 2003

TABLE 23-N FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Flood Control activities pursuant to Section 205 P.L. 858, 80th Congress, as amended	
Project	FY 03 Cost
Section 205 Coordination Account	\$ 9,922
Little Limestone Cr., TN	99,303
Clark Spring Br. , Decatr, AL	5,876
Dallas Branch, Huntsville, AL	49,106
Emily Ave / Tim. St., TN	4,626
Little River, Hopkinsville, KY	73,770
Oak Grove, Christian Co., KY	37,050
Buena Vista Pipeline, Muscle Shoals, AL	14,915
Shoal Creek, Lawrenceburg, TN	7,054
Big and Little Moccasin Creeks, VA	11,654
Beaver Creek & Tribs, Bristol, VA	29,944
Beaver Creek & Tribs, Bristol, TN	23,048
Metro Center Levee, Nashville, TN	451,423
Mouse Creek, Cleveland, TN	37,509
Stoney Creek, VA	24,780
Tazwell, VA	17,899
South Fork Powell River, Wise County, VA	12,910
Richland Creek, Nashville, TN	83,647
Chilhowie, VA	43,424
Swords Creek, Russell Co., VA	10,329
Total	\$1,048,189

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 23-N FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION
(continued)

**Emergency Bank Protection (Section 14 of the 1946
Flood Control Act, P.L. 526, 79th Congress)**

Project	FY 03 Cost
Section 14 Coordination Account	\$ 24,281
Blannahassett Island, French Broad River	451,098
Lakeshore Park, Knoxville, TN	36,051
North 1st Sewer, Nashville, TN	32,712
Rivers Landing Drive, New Hope, TN	8,170
Pennington Gap, VA	1,601
Ditto Landing, Phase II, Huntsville, AL	56,740
Red River Streambank Stabilization, TN	796,700
Gay Street, Nashville, TN	28,767
Damascus, VA	10,035
Danridge, TN	3,306
Sheffield Pak, Sheffield, AL	6,079
Terminal Road, Chattanooga, TN	3,822
Hurrican Creek, Waynesboro, TN	8,934
Total	\$1,468,296

LOUISVILLE, KY DISTRICT

This district encompasses southwestern Ohio, all of Central Kentucky and portions of western and eastern Kentucky, the southern 3/4 of Indiana, and southeastern Illinois, all included in the drainage basin of the Ohio River and its tributaries (exclusive of Tennessee and Cumberland Rivers) from mile 438 (below Pittsburgh)

immediately upstream from Foster, KY., to the mouth of the Ohio.

All cost and financial statements for projects are listed at the end of this chapter. All other tables are referenced in text and also appear at the end of this chapter.

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Navigation - Channels and Harbors**1. OPEN CHANNEL WORK, LICKING RIVER, KY**

Location. The Licking River originates in southeastern Kentucky and flows generally northwesterly to its confluence with the Ohio River at Covington, KY, mile 470.2 below Pittsburgh, PA. The Licking River Basin includes the drainage area of the Licking River, and all other left bank tributaries of the Ohio River from Markland Locks and Dam (Ohio River Mile 531.5) upstream to Meldahl Locks and Dam (Ohio River Mile 436.2).

Existing project. There are no locks and dams on the Licking River. However, a navigable depth of 9 feet is maintained up to mile 7.0 on the Licking River.

Local Cooperation. None.

Terminal facilities. Facilities for bulk commodities, oil products, and coal are considered adequate for existing traffic.

Operations during fiscal year. New Work: None. Maintenance: None.

Navigation - Locks and Dams**2. CONSTRUCTION OF LOCKS AND DAMS, OHIO RIVER**

For report on this improvement, see the heading under Ohio River.

3. GREEN AND BARREN RIVERS, KY

Location. Green River rises in Casey County, KY, flows northwesterly 370 miles, and empties into the Ohio River about 8 miles above Evansville, IN. Barren River rises in Monroe County, KY, flows northwesterly 130 miles, and empties into Green River 1/2 mile above Lock 4 and 149.5 miles above the mouth of Green River.

Existing project. Six locks and dams on Green River and one on Barren River were constructed in pools of dams to provide a navigable depth of 9 feet and width of 200 feet from the Ohio River to mile 103 Green River, 3.2 miles upstream from Paradise, KY and a navigable depth of 5.5 feet from mile 103 Green River to Mammoth Cave, KY, mile 197.8 Green River, and from mouth of Barren River mile 149.5 Green River to Bowling Green, KY, mile 30.1, Barren River. Of these facilities, only Green River L&D 1 and 2 are still operational. Green River L&D 3, 4, 5, 6 and Barren River L&D 1 are maintained by the Corps in a caretaker status.

Fluctuations in stage vary considerably at different locks. At Lock 3, Green River, ordinary high stages are from 12 to 15 feet above pool level, and at Lock 1, Barren River, from 7 to 10 feet above pool. Maximum stages of record are 34 feet above normal pool stage at Lock 3, Green River, and 29 feet at Lock 1, Barren River, obtained during floods of 1937 and 1913, respectively. (See Table 24-B for authorizing legislation and Table 24-H for principal features of the locks and dams.)

The Louisville District has prepared a draft report regarding the disposal of Locks and Dams 3 through 6 on the Green River and Lock and Dam 1 on the Barren

River. The report recommends filling the lock chambers at all of the sites and removal of the dam at Green River L&D 6. The draft report has been reviewed at HQUSACE and a final report is being prepared.

Local Cooperation. Fully complied with.

Terminal facilities. Coal handling facilities located on the Green River between miles 81.5 and 108.1 near South Carrollton, Rockport, Paradise and Rochester, Kentucky, are considered adequate for existing commerce.

Operations during fiscal year. New Work: None. Maintenance: Routine maintenance was performed.

Condition at end of fiscal year. Locks and Dams 1 and 2, Green River, are in good condition. Dam 3 on the Green and Dam 1 on the Barren are in fair condition and the locks at those locations are in poor condition. Lock 4, Green River, is in poor condition. Dam 4, Green River, failed May 24, 1965, when 120 feet washed out. Breach later widened, and repairs have been permanently deferred. Pool of Dam 1, Barren River, is maintained for local small boat use, but navigation through lock is suspended because of loss of lower pool. Operation activity was discontinued at Lock 4 Green River and Lock and Dam 1 Barren River in January 1974 and at Lock 3, Green River in September 1981. The residences and associated buildings and certain real estate at Lock 4 Green River and Lock and Dam 1 Barren River were disposed of in January 1975. Operation of Locks 5 and 6, Green River, was discontinued August 1951, as they were no longer used by river traffic. Controlling project depth in lower 103 miles of Green River is 9 feet; controlling depth from mile 103 to Bowling Green, KY, is 5.5 feet. Channel of Green River above Lock 3 is no longer maintained.

4. KENTUCKY RIVER, KY

Location. Formed by confluence of its North and Middle Forks about 4 miles east of Beattyville in east central Kentucky, (South Fork joins the main stream at that location), flows northwesterly and empties into Ohio River at Carrollton, KY, mile 545.8 below Pittsburgh, PA.

Existing project. Provides for 14 locks and fixed dams to give, in connection with improvement of Ohio River, slack water navigation of 6 feet minimum depth from Ohio River to places on the three forks that are short distances above Beattyville, KY. Length of 6-foot-depth project on main stem of Kentucky River is 258.6 miles to confluence of Middle and North Forks. Cost of completed new work is \$6,205,819. River frequently rises to 35 feet or higher. Extreme height at Lock 1 due to flood backwater from Ohio River is 60.3 feet, while extreme floods reach height of 47.6 feet at Lock 4, and 35.5 feet at Lock 14. At some intermediate locks extreme height of floods exceeds 40 feet. All flood heights refer to upper pool gages. Existing project was adopted by 1879 River and Harbor Act (H. Ex. Doc. 47, 45th Cong., 3d Sess., and Annual Report, 1879, p. 1398). Operation and care of locks and dams were included in project July 1, 1935, under provision of Permanent Appropriations Repeal Act of June 26, 1934. (See Table 24-H for

LOUISVILLE, KY DISTRICT

principal features of the locks and dams.)

On December 19, 1976, the lock operation schedules for commercial traffic and recreational craft on the Kentucky River System were reduced from continuous 24-hour year-round operation to two-shift year-round operation of Locks 1 through 4, intermittent daily operation of Locks 5 through 10, and intermittent operation five days weekly of Locks 11 through 14. Since that time the hours for operation of Locks 5 through 14 have been reduced in several increments. On October 1, 1981, Locks 5 through 14 were closed to traffic and placed in caretaker status. On May 21, 1985 Locks 5 through 14 were leased to the Commonwealth of Kentucky and were operated on weekends during the summer boating seasons through October 15, 1989 when the lease expired. The Commonwealth of Kentucky continued operation again under a lease agreement signed in 1990 with several extensions that allow the Commonwealth to operate the Locks until 2019. In 2001 the last commercial operator in pool 4 ceased operations ending federal interest in operating Locks and Dams 1 through 4. The Commonwealth of Kentucky now operates and manages Locks and Dams 1 through 4 under Department of the Army Lease for Public Park and Recreation, which was granted March 1, 2002.

The FY 1993, 1994, 1996, 2000 and 2001 Energy and Water Development Appropriation Acts provided a total of \$14.75 million to the Corps to repair the Kentucky River Locks and Dams 5 through 14 to ensure water supply prior to and in preparation for a direct transfer of ownership to the Commonwealth of Kentucky. This construction work was all completed by December 2001. During fiscal year 2002 construction of a visitors pavilion and restrooms were also initiated at Lock and Dam 14 and the work was completed in September 2003. In December 1996 the Assistant Secretary of the Army (CW) signed the first quitclaim transfer deed for Lock and Dam 10 for direct transfer from the Corps to the Commonwealth. The Kentucky River Authority (KRA) currently manages the facility. The Corps continues efforts to transfer the remaining Locks and Dams 5 through 9 and 11 through 14 to the Commonwealth.

Although Lock and Dam 10 was transferred to the Commonwealth of Kentucky, FY 2001 authorization language directed the Corps to take all measures to further stabilize and renovate Lock and Dam 10 for the purpose of extending the design life of the structure. The Corps is currently performing a detailed evaluation of the existing facility that will ultimately recommend a long-term method to "stabilize and renovate" Lock and Dam 10. The results of this evaluation will be presented in a report, which is scheduled for completion in 2005. Since construction of the plan that will be recommended is several years away, the Corps and KRA are also investigating what needs to be done to assure near-term safety and stability.

Licenses. Federal Regulatory Commission License No. 539, to Kentucky Utilities Co., at Dam 7, Kentucky River, Annual charge, \$4,400; total collections through September 30, 2003, \$354,805.

Terminal facilities. Facilities for bulk commodities are considered adequate for existing traffic.

Operations during fiscal year. New Work: None. Maintenance: None.

Condition at end of fiscal year. Existing project was completed in 1917. Work accomplished was rehabilitation of the five old State locks and dams and construction of new Locks and Dams 6 to 14 inclusive. Repairs have been made to deteriorated locks and dams as required to keep locks in operation and maintain pool levels above dams except in extreme dry weather, when some pools fall below normal levels, details in Annual Reports for 1963, 1964, and 1965. Channel work was performed as required to provide for existing river traffic. Controlling navigable depth in length of river covered by existing project was 6 feet at end of fiscal year.

5. OPEN CHANNEL WORK, OHIO RIVER

For report on this improvement, see this heading under Ohio River.

6. OTHER AUTHORIZED NAVIGATION PROJECTS

See Table 24-C.

7. NAVIGATION WORK UNDER SPECIAL AUTHORIZATION

None.

Flood Control - Local Protection

8. BEARGRASS CREEK, KENTUCKY

Location. The project is located in eastern Jefferson County in the suburbs of Louisville, Kentucky, along the South Fork of Beargrass Creek and Buechel Branch.

Existing Project. The project consists of construction of eight detention basins, about 2,000 linear feet of channel improvement, and 1,400 linear feet of floodwall/levee on the South Fork of Beargrass Creek and Buechel Branch. The project will provide protection to 830 structures (combination of residential and commercial). Of those structures, 314 will be removed from the 100-year flood plain. The 100-year flood plain will be reduced an average of 1.5 feet, as a result of project implementation. The project was authorized by the Water Resource Development Act of 1999. Estimated cost of the new work is \$12,338,000 of which \$8,020,000 is federal cost and \$4,318,000 is non-federal cost.

Local Cooperation. The non-Federal cost sharing partner is the Louisville and Jefferson County Metropolitan Sewer District (MSD). A Preconstruction, Engineering and Design (PED) Phase cost sharing agreement with MSD was executed in January 1998. The Chief of Engineers report approved the project in May 1998. A Project Cooperation Agreement (PCA) with MSD was executed in September 2001.

Operations during fiscal year. Work this year included preparation of plans and specifications and subsequent award of the second contract.

Conditions at end of fiscal year. The project is about 35% complete. Design is complete for the first and second construction contracts. The first contract was

awarded 4th quarter FY2002 and the second contract was awarded 4th quarter FY2003.

9. COMBINED SEWER OVERFLOWS, INDIANAPOLIS, IN

Location. Indianapolis, IN.

Existing Project. The existing project consists of providing the City of Indianapolis technical, planning and design assistance for implementation of their Long Term Control Plan. The Long Term Control Plan is designed to improve water quality in Marion County and modernize the City's 19th century sewer system that discharges raw sewage to local streams at 135 overflow points during wet weather events. Work was authorized under Section 219 of the Water Resources Development Act of 1992, as amended.

Local Cooperation. The non-federal cost sharing partner is the City of Indianapolis, Indiana. The Corps and the City of Indianapolis signed the Design Agreement in March 2003.

Operation during fiscal year. Preparation of Design Agreement for technical, planning and design assistance of CSO facilities. Preparation of a scope of work for the Fall Creek Reach Evaluation study.

Condition at end of fiscal year. City of Indianapolis has requested changes to the Scope of Work. Information is being obtained to incorporate these changes in order to initiate design assistance.

10. DUCK CREEK, OH

Location. The project area is located in the City of Cincinnati and the Village of Fairfax in Hamilton County, Ohio. The project encompasses 3.2 miles of the stream and begins approximately 2 miles upstream of the confluence of Duck Creek with the Little Miami River.

Existing project. The project consists of approximately 7,100 feet of concrete flood wall, 3,300 feet of earth levee, 8,500 feet of riprapped stream bank, 1,200 feet of channel relocation, 1,100 feet of culvert, demolition of an abandoned highway bridge, widening of a railroad bridge, a pump station, and automatic road closure, and an emergency access road. Estimated cost of new work is \$36,891,000 of which \$32,691,000 is Federal and \$4,200,000 is non-Federal. The project was originally authorized by the Water Resources Development Act of 1996 and reauthorized by the Water Resources Development Act of 2000.

Local Cooperation. The non-Federal sponsors are the City of Cincinnati and the Village of Fairfax. The Project Cooperation Agreement (PCA) was executed in December 1997.

Operations during fiscal year. Work this year included completion of the Phase 1 contract for channelization and demolition of an abandoned highway bridge and continuation of the Phase 3 contract involving the construction of a concrete arch culvert, floodwalls and stone protection within the Village of Fairfax, Ohio.

Condition at end of fiscal year. The project is about 40 percent complete overall with design approximately 85 percent complete.

11. HOLES CREEK, OH

Location. Project area is located on Holes Creek in West Carrollton, Montgomery County, Ohio. West Carrollton is situated in the southwestern portion of Ohio and is a suburb of Dayton. Holes Creek drains 28.2 square miles and empties into the Great Miami River at river mile 72.6.

Existing project. Project consists of approximately 4,300 feet of channel widening (80-foot bottom width) with associated bank protection. The existing box culvert type Conrail bridge will be replaced with a 70-foot clear span structure. Project will provide protection to 428 structures in West Carrollton and Moraine. Estimated total cost (including additional work) is \$13,500,000 Federal and \$1,480,000 non-Federal.

Local Cooperation. The non-Federal cost-sharing partner is the Miami Conservancy District (MCD). MCD formed the Holes Creek/Owl Creek Conservancy Subdistrict to act as formal sponsor for this project. The Subdistrict entered into the Project Cooperation Agreement with the Government in September 1996. Funds were provided to the Subdistrict by Montgomery County, the City of West Carrollton, the City of Moraine, and Miami Township.

Operations during fiscal year. Work this fiscal year included completion of modifications to the second construction contract, and design on additional required features.

Conditions at end of fiscal year. Additional work (including a levee and property relocations) are required to provide the project outputs. A technical report and plans and specifications will be developed followed by construction of the new features.

12. LOUISVILLE WATERFRONT PARK, LOUISVILLE, KY

Location. Louisville, Jefferson County, Kentucky, on the left bank of the Ohio River at river mile 603.

Existing Project. The existing project consists of developing a master plan for the development of the Ohio River Shoreline. The proposal includes a marina facility, boat-launching facilities, playgrounds, and walking trails. The design was authorized by the Conference Report for the Omnibus Consolidated and Emergency Supplemental Appropriations. The current language permits the Corps to prepare the master plan and continue design. In order to move into the construction phase authorization is needed in the next Water Resources Development Act.

Local Cooperation. The non-Federal cost sharing partner is the Louisville Waterfront Development Corporation. The master plan was approved July 22, 2002. A design agreement can now be executed.

Operations during fiscal year. Work this year consisted of attempts to negotiate a Design agreement.

Conditions at end of fiscal year. The Louisville Waterfront Development Corporation did not sign the Design agreement and intends to pursue only the Big 4 bridge part of the project with full federal funding.

13. MILL CREEK, OH

Location. Project is located along the 18-mile length of Mill Creek and three-fourths mile length of East Fork.

Existing project. 17.5 miles of channel improvement, 2 miles of levees, three pumping plants, modification of 29 bridges, and the addition of two pumping units at the present Mill Creek Barrier Dam, located near the Ohio River, are included in the project. Acquisition and development with appropriate landscaping of 620 acres along the creek will be provided for high-density urban oriented recreational use.

Local Cooperation. Section 3, Flood Control Act of 1936 as amended, applies. An assurance agreement covering local cooperation requirements for the project consistent with Section 221 of the 1970 Flood Control Act and the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 was executed by the Millcreek Valley Conservancy District February 6, 1975, and for the Secretary of the Army March 28, 1975. A recreation cost-sharing contract was executed by the Conservancy District February 25, 1975, and approved by the Secretary of the Army May 28, 1975. A Contributed Funds Agreement for the General Reevaluation Report was executed in August 1998. An Operations and Maintenance Agreement for the completed portions of the project was also executed in August 1998.

Operations during fiscal year. The U.S. Army Corps of Engineers has continued work on a General Reevaluation Report that would provide a new course of action for completing the project. Additional planning and engineering studies have been performed and the Corps is analyzing 5 with project plans. In addition construction is underway for repairs to one previously constructed section of the project in order to turn it over to the local sponsor for assumption of full maintenance on that portion of the total project. During the 2003 flood season \$678,000 in benefits were realized.

Condition at end of fiscal year. Construction of channel and levee-Sections 1,2,3,4A, and 7A, Phase 1, are complete. Original channel modification project is about 52 percent complete overall. The General Reevaluation Report is approximately 50% complete.

14. OHIO ENVIRONMENTAL**INFRASTRUCTURE SECTION 594****PROGRAM**

Location. The project location includes the entire state of Ohio, which includes portions of the Louisville, Huntington, Buffalo, and Pittsburgh Districts. The program is for the design and construction assistance of environmental infrastructure projects.

Existing Projects: Under the Section 594 Authority, we have 3 projects selected and in progress in Highland and Clark counties, OH.

Highland County – Hillsboro Water Treatment Plant Project: Design PCA signed September 2002 and design completed in FY 2003.

Clark County – Springfield, OH Southern Interceptor Sewer Project: PCA for design/construction was signed in

September 2002.

Clark County – Springfield, OH #2 Southern Interceptor Sewer Project: PCA execution anticipated in FY04 for construction.

Local Cooperation. Project Cooperation Agreements are required for each project.

Operations during fiscal year. Design was completed for Hillsboro Water Treatment Plant.

Conditions at end of fiscal year. Work continues on one project and one new project was identified.

15. OHIO RIVER FLOOD PROTECTION (INDIANA SHORELINE), IN

Location. The six existing local flood protection projects are located along the Indiana shore from Ohio River mile 492 in Lawrenceburg downstream to mile 792 in Evansville. They are in the communities of Evansville, Tell City, Cannelton, New Albany, Jeffersonville-Clarksville, and Lawrenceburg.

Existing project. Each of the six local flood projects was constructed by the Corps and have been locally operated and maintained. All six projects were constructed to protect against the 1937 flood plus three feet of freeboard. Rehabilitation measures are necessary at each of the six sites in order to maintain their integrity and to insure that they continue to provide the benefits for which they were designed. Rehabilitation would consist of slip lining (or where necessary replacement) of all pipes and culverts which are part of the flood protection facilities, replacing aging pump station equipment, restoring expansion joints and closures, and repairing, as needed, floodwalls and other structures. Estimated cost of new work is \$7,390,000 of which \$5,542,500 is Federal and \$1,847,500 is non-Federal.

Local Cooperation. The following Project Cooperation Agreements (PCA) have been executed with the communities: Lawrenceburg PCA - September 1998, Evansville - November 1998, Tell City PCA - June 1998, Cannelton PCA - September 1999, New Albany – November 1999 and Jeffersonville-Clarksville – November 1999.

Operations during fiscal year. Construction is complete at Tell City, Lawrenceburg, Evansville and Cannelton.

Conditions at the end of fiscal year. Project is about 60 percent overall with design 100 percent complete. Federal funds of \$650,000 were included as a Congressional Add to the energy and Water Development Appropriations Act of 2004 (PL108-37) for the purpose of initiating construction of the New Albany and Jeffersonville-Clarksville projects. The Corps of Engineers will use those funds, and the non-Federal sponsors' proportionate shares, to begin rehabilitation of critical structures and equipment by late FY2004 or early FY2005.

16. OHIO RIVER GREENWAY PUBLIC ACCESS, IN

Location. The Ohio River Greenway is a seven-mile linear corridor that extends from the City of Jeffersonville

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through the Town of Clarksville to the City of New Albany, Indiana, along the Ohio River Shoreline. The project extends from the Ohio River Mile 602 to Ohio River Mile 609. The corridor adjoins the McAlpine Locks and Dam project and the Falls of the Ohio National Wildlife Conservation Area on the Indiana side of the river.

Existing project. The project features consist of a vehicular parkway, pedestrian and multi-use paths, a bridge, and two levee cuts for additional access to the river. The project was authorized by the Water Resources Development Act of 1996. Estimated cost for the project is \$35,000,000 of which \$17,500,000 is federal cost and \$17,500,000 is non-federal cost.

Local Cooperation. There are four non-federal sponsors: The Ohio River Greenway Development Commission, the City of New Albany, the Town of Clarksville, and the City of Jeffersonville. The Project Cooperation Agreement was executed 2 June 2003.

Operation during fiscal year. Work this year included execution of the PCA, completion of plans and specifications for the 1st construction contract and contract award in June 2003.

Condition at end of fiscal year. The project was approved for construction by the ASA(CW) in April 2000. The project is 10% complete overall.

17. POND CREEK, LOUISVILLE, KY

Location. The project is located in the central and eastern portions of the 126 square mile Pond Creek watershed in southern Jefferson County, Kentucky.

Existing project. The project consists of constructing a 1500 acre-feet detention basin storage facility along Northern Ditch. An existing abandoned rock quarry adjacent to Fishpool Creek will be converted to a detention basin. Approximately 2.4 miles of the Pond Creek channel will be enlarged as well as 1.5 miles of Northern Ditch. A multi-purpose maintenance road/recreation trail will be constructed along the length of the Pond Creek channel improvement. In addition, three inactive settling basins owned by the local sponsor will be converted into an environmental restoration site. Estimated cost for the project is \$20,800,000 of which \$15,300,000 is Federal and \$5,500,000 is non-Federal. The project was authorized by the Water Resources Development Act of 1996.

Local Cooperation. The non-Federal cost-sharing partner is the Louisville and Jefferson County Metropolitan Sewer District (MSD). MSD has included all funds necessary for their cost share of the project in their capital budget plan. The Project Cooperation Agreement (PCA) was executed in March 1998.

Operations during fiscal year. Work this year includes construction of Phase III Melco Basin and preparation of contract documents for the final phase of the project, Phase IV Channel Improvements.

Conditions at end of fiscal year. The project is about 80 percent complete. Design is 98 percent complete. The first two phases of the construction project are completed.

The Melco Basin is under construction and will be completed in FY 04.

18. POND CREEK, KENTUCKY, FLOODPLAIN EVACUATION.

Location. Metropolitan Louisville, Jefferson County, Kentucky.

Existing project. Prepare a study to evaluate the purchase and demolition of residences that lie in the Pond Creek Drainage Basin within 100-year floodplain that experience significant flooding. The property would be allowed to revert to wetlands and riverine habitat. Additional improvements could also be evaluated such as removal of fill material and planting of native trees, shrubs, and grasses. The Conference Report for the Omnibus Consolidated and Emergency Supplemental Appropriations for fiscal year 2001 provided the initial funding for the project. Additional funds were appropriated in the Energy and Water Development Appropriations Act of 2002.

Local Cooperation. The non-federal cost-sharing partner is the Louisville and Jefferson County Metropolitan Sewer District (MSD). Once a Decision Document is approved and a viable project is identified, a Design Agreement will be executed with a non-federal sponsor.

Operations during fiscal year. Completion of a Decision Document to identify flood prone structures in the Pond Creek watershed and evaluate the feasibility of removing those structures from the floodplain.

Conditions at end of fiscal year. There were no economically feasible alternatives identified in the study. In February 2003, the Commander and District Engineer recommended no further Federal action on the project.

19. SALYERSVILLE, KY

Location. Project is located along the banks of the Licking River from approximately mile 266 and 271 in Magoffin County, Kentucky along the Mountain Parkway about 75 miles southeast of Lexington, Kentucky.

Existing Project. The most cost-effective and feasible plan to provide the authorized level of protection (1978 flood protection) is called the "Cut-Thru Plan" and includes two channel cut-thrus, a barrier dam at the upstream cut-thru, and an 0.8-mile reach of channel improvement connecting the two cut-thrus. Estimated total cost of new work is \$8,541,000 of which \$7,730,000 is Federal and \$811,000 is non-Federal.

Local Cooperation. The local sponsor qualifies for an "ability to pay" reduction pursuant to Section 103(m) of the 1986 Water Resource Development Act. Based on current costs and economics, the local sponsor share would be 9.5 percent of the total project cost. The Project Cooperation Agreement (PCA) was executed in August 1995. The construction contract was awarded in September 1996 and completed in July 1998.

Operations during fiscal year. Construction was completed in FY 99.

LOUISVILLE, KY DISTRICT

Conditions at the end of fiscal year. Project is complete, except for pending real estate actions on two tracts of land.

20. SOUTHWESTERN JEFFERSON COUNTY, KY

Location. In Jefferson County, KY, on left bank of Ohio River from mile 616 to 628.6.

Existing project. Construction of 68,500 feet of levee, 1,550 feet of concrete wall, four pumping plants, and other necessary appurtenances. Project provides protection for 24,100 acres against Ohio River floods equal to 1937 flood of record with 3-foot freeboard. Cost of new work is \$70,049,492, of which \$60,207,439 is Federal, and \$9,842,053 is non-Federal. Project was authorized under Flood Control Act of August 1968. Recreation as a project purpose has been deferred.

Local Cooperation. Section 3 Flood Control Act of 1936 as amended applies. In addition, local interests agree to administer project land and water areas for recreation and fish and wildlife enhancement; and to pay, contribute in kind or repay (which may be through user fees) with interest, one-half of the separable first cost of the project allocated to recreation and fish and wildlife enhancement; and bear all costs of operation, maintenance and replacement of lands and facilities for recreation and fish and wildlife enhancement. Jefferson County Fiscal Court expressed intent to fulfill requirements by resolution dated April 4, 1967. Formal assurances of local cooperation for the flood protection portion of the project was executed by resolution of Jefferson County Fiscal Court, adopted September 17, 1971, and assurances for the recreation portion of the project was executed by similar resolution, adopted September 14, 1971. Authorization-of-entry for levee and floodwall sections 1,2,3,4,4A,5 and Pond Creek Pump Plant have been furnished. Project was transferred to local interest on September 8, 1989.

Operations during fiscal year. New Work: Project is 100 percent complete. During the 2003 flood season, no benefits were realized.

21. SOUTHERN AND EASTERN KENTUCKY ENVIRONMENTAL INFRASTRUCTURE SECTION 531 PROGRAM

Location. The project location comprises a 27 county region in southern and eastern Kentucky, which includes portions of Louisville, Huntington, and Nashville Districts. The program is for the design and construction assistance of environmental infrastructure projects.

Existing Projects. Under the Section 531 Authority, to date we have 3 projects physically complete. These projects all lie within Menifee, Floyd, and Laurel counties. We also have 8 wastewater related designs in progress in the counties of Bath, Jackson, Magoffin, Pulaski, Leslie, Perry, and Laurel.

Bath County – Preston, KY Decentralized Wastewater Treatment System project: PCA executed in FY03 for design and construction.

Jackson County – McKee Utility Improvement Project:

PCA executed September 2000. Design continued in FY 2003.

Magoffin County – Salyersville/Magoffin County Sewer line Extension Project: PCA executed June 2000. Design continued in FY 2003.

Pulaski County – Science Hill Sewer Project: PCA executed September 2001. Design continued in FY 2003.

Leslie County – Hyden Sewer Project: PCA executed September 2001. Design continued in FY 2003.

Perry County – Vicco Wastewater Treatment and Collection Project: PCA executed November 2001. Design continued in FY 2003.

Laurel County – Northland Estates Sewer Project: PCA executed November 2001. Design continued in FY 2003.

Laurel County – Wood Creek Wastewater Treatment Project: PCA executed September 2003.

Work is authorized under Section 531 of the Water Resources Development Act of 1996 (P.L. 104-303).

Local Cooperation. Project Cooperation Agreements have been executed for Pulaski County, Leslie County, Menifee County, Floyd County, Laurel County, Magoffin County, Perry County and Jackson County.

Operations during fiscal year. Work this year included completion of a PCA with Bath County. Design continued on all projects.

Condition at end of fiscal year. Three projects are physically complete. One additional PCA was signed resulting in one new design during fiscal year and seven designs were continued in FY 03.

22. WABASH RIVER, NEW HARMONY, IN

Location. The project is located in Posey County in Southwestern Indiana along the left bank of the Wabash River. The town is about 120 miles southwest of Louisville, Kentucky, and seven miles south of I-64.

Existing Project. The project consists of providing erosion control along the left bank of the Wabash River at New Harmony, Indiana. This will be accomplished by placing stone beginning at a point 950 meters (3117 feet) upstream of the State Highway 66 bridge and continuing upstream for a distance of 1470 meters (4823). To comply with environmental commitments, wildlife supporting hardwood seedlings will be planted along the project right-of-way. Cost of the new work was \$3,239,025 of which \$2,429,269 is Federal and \$809,756 is non-Federal. The project was authorized by the Water Resources Development Act of 1996.

Local Cooperation. The non-Federal cost sharing partners are the Town of New Harmony, Indiana and the Department of Natural Resources (IDNR). Both cost-sharing partners included all funding necessary for their cost share of the project in their FY 99 and FY 00 budgets. A Project Cooperative Agreement (PCA) was executed in January 2000. The sponsor has completed real estate acquisition.

Operations during fiscal year. Work this year included financial closeout and turnover of the project to the customer. As built drawings and operation and

maintenance manuals were completed and provided to the customer..

Conditions at the end of fiscal year. The project is 100 percent complete. Project fiscal closeout and turnover to customer was completed in August 2003.

23. WHITE RIVER, INDIANAPOLIS CENTRAL WATERFRONT, IN

Location. Project is located along the White River in the City of Indianapolis, IN.

Existing project. Project consists of infrastructure improvements such as public access parking, walkways, pedestrian bridges, landscaping, lighting, and water features. The project also includes continuous public access along both sides of the White River waterfront through the construction of walkways, bike paths, landscaped promenades, and the rebuilding and reconfiguring of the existing concrete slopewalls. Estimated cost of new work is \$113,804,500 of which \$52,475,000 is Federal and \$61,329,500 is non-Federal.

Local Cooperation. The non-Federal sponsors are the White River State Park (State of Indiana) and the City of Indianapolis. All lands for the project have been acquired by the sponsors. The Project Cooperation Agreement (PCA) was executed in December 1997. Amendments to the PCA were executed in June 1999 to add the Upper Canal feature to the Project and in February 2001 to add the Beveridge Paper feature.

Operations during fiscal year. Work this year included substantial completion of one construction contract, and completion of plans and specifications and award of the final construction contract.

Condition at end of fiscal year. Project is about 95 percent complete overall with design 100 percent complete and construction about 95 percent complete.

24. WHITE RIVER INDIANAPOLIS (NORTH), IN

Location. The project is located in metropolitan Indianapolis, Indiana, along the northern reaches of the White River within Marion County.

Existing project. The project is located along 3 miles of the White River in the City of Indianapolis, IN, and consists of a combination of levees and floodwalls, rehabilitation of an existing pump station, two mitigation sites, and a flood warning system. Estimated cost of the project is \$19,000,000 of which \$14,250,000 is Federal and \$4,750,000 is non-Federal.

Local Cooperation. The non-Federal cost-sharing partner is the City of Indianapolis, Department of Public Works.

Operations during fiscal year. Work this fiscal year included substantial completion of the Phase 1 contract for rehabilitation of the existing Warfleigh Pump Station. In addition, work progressed on the Phase 3A contract for construction of the 7600 foot Warfleigh section of the floodwall/levee. Design activities also continued on the remaining sections of floodwall and earthen levee.

Conditions at the end of fiscal year. The project is 35

percent complete. Construction is authorized and funding provided. The flood warning system is complete. The contract for rehabilitation of the existing pump station is scheduled for physical completion in the second quarter of FY2004. The Warfleigh section of the levee is scheduled for completion in Spring 2004. A construction contract for the Monon-Broad Ripple section of the floodwall is tentatively scheduled for award by the end of FY2004, pending acquisition of real estate.

Flood Control - Reservoirs

25. BARREN RIVER LAKE, KY

Location. Dam is on Barren River, 79.5 miles above its confluence with Green River and 10 miles northeast of Scottsville, KY. A flood control pool reservoir extends upstream about 40 miles in Barren and Allen Counties, KY. (See U.S. Geological Survey map of Lucas, KY.)

Existing project. A reservoir for flood control and allied purposes. Dam is rolled earth and rockfill, 146 feet high and 3,970 feet long, with gate-controlled outlet works and uncontrolled open-cut spillway. Total storage capacity is 815,200 acre-feet (768,000 for flood control and 46,600 for water supply storage). For further details, see page 1125 of Annual Report for 1962. Cost of the completed project is \$27,479,717 including \$2,335,055 Federal funds and \$108,418 non-Federal funds for construction of recreation facilities under the completed projects program. Project was authorized by Flood Control Act of 1938.

Local Cooperation. None required by authorizing act. Under provision of Water Supply Act of 1958, contract with City of Glasgow for water supply storage was approved by Secretary of Army on October 4, 1965. Terms require City to pay \$23,433, which is project cost allocated to water storage plus capitalized prepayment of proportionate share of operation, maintenance, and major replacement costs. A contract, with the Commonwealth of Kentucky for development of additional campsites, shoreline protection and breakwater extension at Barren River Lake State Park under the cost-sharing category of the completed projects program was approved by the Secretary of the Army November 4, 1977.

Operations during fiscal year. New work: Replaced tower bypass valves and hydraulic components. Maintenance: Routine maintenance was performed. During the 2003 flood season estimated damages of \$6,833,000 were prevented. Visitor expenditures were \$36,306,815.

Condition at end of fiscal year. Construction started in March 1960 and all major construction and relocation items were completed in October 1964. Project was placed in operation in March 1964. Land acquisition is complete.

26. BROOKVILLE LAKE, IN

Location. Dam site is on East Fork of Whitewater River, 2.4 miles above confluence with West Fork, and about 1-1/2 miles north of Brookville, Indiana. The reservoir lies in Franklin and Union Counties, Indiana. (See U.S. Geological Survey map of Brookville, IN.)

LOUISVILLE, KY DISTRICT

Existing project. A reservoir for flood control and allied purposes. Dam is earthfill, 182 feet high and 3,004 feet long, with gate-controlled outlet works, and uncontrolled open spillway. Total storage capacity is 359,600 acre-feet (214,700 for flood control, 89,300 for water supply, and 35,500 for conservation). A minimum pool of 20,100 acre-feet is maintained. Cost of completed new work is \$45,402,565 of which \$37,905,073 is Federal cost and \$7,497,492 is non-Federal contribution for water supply storage. Project was authorized by 1938 Flood Control Act.

Local Cooperation. None required by authorizing act. Contract with State of Indiana for water supply storage under provisions of Water Supply Act of 1958 was approved by Secretary of Army, August 5, 1965. Under terms of contract, State paid initial costs allocated to water supply feature of project plus capitalized prepayment of proportionate share of operation and maintenance costs.

Operation during fiscal year. New work: Repaired eroded concrete in stilling basin. Maintenance: Routine maintenance was performed. During 2003 flood season no flood damages were prevented.. Visitor expenditures were \$13,920,518.

Condition at end of fiscal year. Construction was started in November 1965 and project was placed in operation January 1974. Construction and land acquisition are complete.

27. BUCKHORN LAKE, KY

Location. Dam is on Middle Fork of Kentucky River, 43.4 miles above mouth, and 0.5 mile upstream from Buckhorn, Perry County, KY. Reservoir extends upstream about 34 miles and lies in Leslie and Perry Counties, Kentucky. (See U.S. Geological Survey map of Buckhorn, KY.)

Existing project. A reservoir for flood control and allied purposes. Dam is earth and rockfill type, with gate controlled outlet works. Total storage capacity is 168,000 acre-feet, of which 157,600 are for flood control. For further details, see page 1120 of Annual Report for 1962. Cost of completed new work is \$12,466,206 including \$386,707 for construction of recreation facilities under the completed projects program. Existing project was authorized by general authorization for Ohio River Basin in 1938 Flood Control Act.

Local Cooperation. Department of Parks of the Commonwealth of Kentucky has undertaken management of certain lands and recreational facilities in accordance with license granted by Secretary of the Army on June 29, 1962.

Operations during fiscal year. New work: Modern restrooms were constructed at the Trace Branch and Confluence recreation areas with Construction, General funding provided as a Congressional Add to the Energy and Water Development Appropriations Act of 2002 (PL 107-66). Maintenance: Routine maintenance was performed. Operation for flood control during 2003 flood season prevented damages of \$4,569,000. Visitor expenditures were \$8,090,783.

Condition at end of fiscal year. Construction started in September 1956 and project was placed in operation in August 1960. All construction and land acquisition is complete for original project. A contractor began construction of a shower house and Class A campground facilities at the Trace Branch recreation area in late FY2003. These facilities, funded with the FY2002 Construction General appropriations, will be completed in summer 2004.

28. CAESAR CREEK LAKE, OH

Location. Dam site is on Caesar Creek, about 3.0 miles above its confluence with Little Miami River, in Warren County, OH, about 3.5 miles southeast of Waynesville, OH, and 10.5 miles northeast of Lebanon, OH. Reservoir lies in Warren, Clinton, and Green Counties, OH. (See U.S. Geological Survey map of Oregonia, OH.)

Existing project. Provides for construction of a reservoir for flood control and allied purposes. It includes an earth and rockfill dam, four saddle dams, outlet works and an uncontrolled saddle spillway. Total storage capacity of reservoir is 242,200 acre-feet, of which 148,500 acre-feet are reserved for flood control storage. Cost of new work is \$62,881,010 Federal and \$5,037,000 non-Federal reimbursement for water supply storage. Existing project was authorized by general authorization for Ohio River Basin in 1983 Flood Control Act.

Local Cooperation. None required. However, the State of Ohio requested inclusion in the project of storage for future municipal and industrial water supply uses. Contract with State of Ohio for water supply storage under provisions of Water Supply Act of 1958, as amended, was approved by Secretary of the Army, May 20, 1970. Under terms of contract, State will reimburse the Federal Government for costs allocated to water supply storage over a period not to exceed 50 years after use of this storage is initiated plus estimated annual amount for cost of operation, maintenance and major capital replacements required for the water supply facilities.

Operations during fiscal year. New work: Repaired broken sewer force main. Maintenance: Routine maintenance was performed. During the 2003 flood season estimated damages of \$9,925,000 were prevented. Visitor expenditures were \$33,115,710.

Condition at end of fiscal year. Construction was started in January 1968 and the project was placed in operation January 1978. Land acquisition is complete. All relocation and construction features are complete.

29. CAGLES MILL LAKE, IN

Location. Dam is on Mill Creek, 2.8 miles above its confluence with Eel River, in Putnam County, IN, and about 25 miles east of Terre Haute, IN. Reservoir extends upstream about 11 miles and is in Putnam and Owen Counties, IN. (See U.S. Geological Survey map of Poland, IN.)

Existing project. A reservoir for flood control and allied purposes. Dam is earth and rockfill embankment. Total storage capacity is 228,100 acre-feet, of which

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201,000 acre-feet are for flood control. For details, see Annual Report for 1962, page 1136. Cost of new work is \$4,369,997, which includes \$4,256,903 Federal funds, and \$113,094 contributed funds for construction of recreation facilities under the completed projects program. Existing project was selected for construction under general authorization for Ohio River Basin in 1938 Flood Control Act.

Local Cooperation. None required. State of Indiana has undertaken development and management of recreation facilities for use of the public in reservoir area in accordance with license granted by Secretary of the Army on January 17, 1952. A contract with the Indiana Department of Natural Resources for expanding the boat ramp and parking area at Site 3, Lieber State Park, under the cost sharing category of the completed projects program was signed by the State of Indiana on August 26, 1981 and approved by the Deputy Chief of Engineers on March 26, 1982.

Operations during fiscal year. New Work: None. Maintenance: Routine maintenance was performed. During the 2003 flood season estimated damages of \$11,717,000 were prevented. Visitor expenditures were \$9,399,835.

Condition at end of fiscal year. Construction started in July 1948 and completed in June 1953. Recreation facilities constructed under the cost-sharing category of the completed projects program are complete.

30. CARR CREEK LAKE, KY

Location. Dam site is 8.8 miles above mouth of Carr Fork, a tributary of North Fork of Kentucky River, 16 miles upstream from Hazard, KY. The reservoir lies entirely within Knott County. (See U.S. Geological Survey maps of Carrie and Vicco, KY.)

Existing project. Provides for construction of a reservoir for flood control and allied purposes. Dam is rock and earth fill with impervious core, 720 feet long and 130 feet high, with uncontrolled open cut spillway through left abutment. Outlet works has two control gates and 8-foot diameter conduit to stilling basin. Total storage capacity is 47,700 acre-feet (31,600 for flood control and 4,300 for water quality control). A higher-level seasonal pool for recreation is provided. Cost of completed work is \$51,854,826 including \$76,724 for recreation facilities under the completed projects program. Project was authorized by the 1962 Flood Control Act.

Local Cooperation. None required for reservoir project. Division of Flood Control and Water Usage of Commonwealth of Kentucky gave assurance that encroachments on downstream channel capacity will be prevented. Under the terms of a new lease, the State of Kentucky assumed operation of the Irishman Creek Beach and Campground in 1996. This establishes a State Park at the lake and also provides the impetus for additional resort development. Project name was changed from Carr Fork Lake, KY to Carr Creek Lake, KY effective February 16, 1997 by Public law 104-303, October 12, 1996.

Operations during fiscal year. New work: None. Maintenance: Routine maintenance was performed. During the 2003 flood season estimated damages of \$12,498,000 were prevented. Visitor expenditures were \$12,698,890.

Condition at end of fiscal year. Project was placed in operation January 1976. Construction started in January 1966 is complete.

31. CAVE RUN LAKE, KY

Location. Dam site is on Licking River, about 4 miles upstream from U.S. Highway 60 near Farmers, KY, and 7 miles southwest of Morehead, KY. Reservoir will be in Rowan, Bath, Morgan, and Menifee Counties, KY. (See U.S. Geological Survey maps of Salt Lick and Morehead, KY.)

Existing project. Plan provides for construction of a reservoir for flood control and allied purposes. Dam is rolled earthfill, with gate controlled outlet works and uncontrolled open spillway. Total storage capacity is 614,700 acre-feet (438,500 for flood control and 28,300 for water quality control). Cost of new work is \$81,159,541 of which \$6,900,000 is U.S. Forest Service cost. Project was authorized by Flood Control Acts of June 22, 1936 and June 28, 1938.

Local Cooperation. None required.

Operations during fiscal year. New work: Replaced tower roof. Maintenance: Routine maintenance was performed. During the 2003 flood season estimated damages of \$12,400,000 were prevented. Visitor expenditures were \$12,682,185.

Condition at end of fiscal year. Project has been in operation since February 1974. Construction was started in June 1965 and is complete. Land acquisition is complete. All relocation and construction features are complete.

32. CECIL M. HARDEN LAKE, IN

Location. Dam is on Raccoon Creek, 32.4 miles above its confluence with Wabash River, and 25 miles northeast of Terre Haute, IN. At flood control pool, reservoir extends upstream about 15 miles in Parke and Putnam Counties, Indiana. (See U.S. Geological Survey Map of Mansfield, IN.)

Existing project. A rolled earth dam and reservoir, for flood control and allied purposes. Total storage capacity is 132,800 acre-feet of which 116,600 acre-feet area for flood control. For details, see Annual Report for 1962, page 1132. Cost of completed new work is \$6,987,807 made up of \$6,260,134 for the initial project and \$373,678 Federal cost and \$353,995 non-Federal contribution in kind for recreation facilities under the completed projects program. Project was selected for construction under general authorization for Ohio River Basin in 1938 Flood Control Act. Project name was changed from Mansfield Lake to Cecil M. Harden Lake by Public Law 93-521, December 14, 1974.

Local Cooperation. State of Indiana has undertaken management of lands and recreational facilities in accordance with license granted by Secretary of the Army

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on April 19, 1961. A contract with the Indiana Department of Natural Resources, approved by the Secretary of the Army in May 1974, provided for that agency to design and construct certain additional recreation facilities at Cecil M. Harden, Huntington, Mississinewa, Monroe and Salamonie Lakes under the cost-sharing category of the completed projects program.

Operation during fiscal year. New work: None. Maintenance: Routine maintenance was performed. During the 2003 flood season estimated damages of \$12,400,000 were prevented. Visitor expenditures were \$30,547,689.

Condition at end of fiscal year. Construction started in October 1956 and all major items of work were completed December 1961. Land acquisition is complete. Project has been in operation since August 1960. Cost shared recreation facilities constructed by the State of Indiana under the completed projects program are completed.

33. CLARENCE J. BROWN DAM & RESERVOIR, OH

Location. Dam site is just east of Springfield, Clark County, OH, at mile 7.3 of Buck Creek, a tributary of Mad River. (See U. S. Geological Survey maps of New Moorefield and Springfield, OH.)

Existing project. A reservoir for flood control and allied purposes. It includes an earthfill dam, 6,620 feet long and 72 feet high, with gated outlet works and open cut spillway with concrete chute through right abutment. Total storage capacity of reservoir is 63,700 acre-feet (32,900 for flood control and 20,800 for water quality control). Federal cost of completed project is \$22,083,660. Project was authorized by 1962 Flood Control Act. Project name was changed from Buck Creek Dam and Reservoir to Clarence J. Brown Dam and Reservoir by Public Law 90-46, July 4, 1967.

Local Cooperation. Assurances from City of Springfield, Springfield Conservancy District, and Clark County, Ohio, covering protection against detrimental channel encroachment below dam to mouth of Buck Creek, were accepted March 5, 1964.

Operations during fiscal year. New work: None. Maintenance: Routine maintenance was performed. During the 2003 flood season no damages were prevented. Visitor expenditures were \$19,410,548.

Condition at end of fiscal year. Construction started in September 1966. Land acquisition and all major project features were completed in November 1973. The project was placed in operation in January 1974.

34. GREEN RIVER LAKE, KY

Location. Dam site is 305.7 miles above mouth of Green River in Taylor County, KY, about 8 miles south of Campbellsville. Reservoir lies in Taylor and Adair Counties. (See U.S. Geological Survey map of Cane Valley, KY.)

Existing project. A reservoir for flood control and allied purposes. Dam is earth and rockfill, 141 feet high and 2,350 feet long. Outlet works is slide gate-controlled

and spillway open and uncontrolled. Total storage capacity is 723,200 acre-feet (560,600 for flood control and 64,500 for low-flow augmentation). Cost of completed new work is \$33,462,330, consisting of \$33,105,184 initial project funds, \$40,001 for water supply, and \$317,145 Federal funds for construction of recreation facilities under the completed projects program. Existing project was authorized under general authorization for Ohio River Basin in 1938 Flood Control Act.

Local Cooperation. None required by authorizing act. Taylor County, by lease approved by Secretary of Army February 15, 1968, undertook operation and maintenance of Smith Ridge public access area. In May 1980, the lease was amended to turn back responsibility for maintenance and operation of the site to the Corps. Under provision of Water Supply Act of 1958, contract with City of Campbellsville for water supply storage was approved by Secretary of Army April 23, 1969. Terms require city to repay, with interest and annual charges for operation, maintenance and major replacement, the investment cost of \$85,765 allocated to its water supply storage space. The Department of Parks of the Commonwealth of Kentucky, by lease approved by Secretary of Army, October 4, 1971, has undertaken the management of the Lone Valley public access area.

Operations during fiscal year. New work: Replaced motor control center in tower. Maintenance: Routine maintenance was performed. During the 2003 flood season estimated damages of \$6,611,000 were prevented. Visitor expenditures were \$30,306,692.

Condition at end of fiscal year. Construction began in August 1965 and all major construction and relocation items were completed in 1972. Project has been in operation since February 1969. Project including all land acquisition complete in 1973. Construction of sanitary dump station for boats at Dam Site in conformance with EPA and State standards and rehabilitation of sewage treatment facilities, washhouses and restrooms at Smith Ridge site is complete.

35. J. EDWARD ROUSH LAKE, IN

Location. Dam site is on Wabash River, about 2 miles from Huntington, IN, and 411.4 miles above mouth. Reservoir is in Huntington and Wells Counties, IN. (See U.S. Geological Survey maps of Majenica and Mt. Etna, IN.)

Existing project. A reservoir for flood control and allied purposes. Dam consists of a rolled earth embankment 4,700 feet long and 89 feet high, a concrete spillway and outlet section 155 feet long, and a concrete gravity section 310 feet long. Spillway is controlled by three gates, and outlet works by six sluices. Project also provides local flood protection for Markle, IN. Total storage capacity of reservoir is 153,100 acre-feet, of which 149,000 acre-feet is reserved for flood control storage. Cost for new work is \$19,621,777 made up of \$19,428,355 Federal cost for the initial project and \$193,422 non-Federal contributed funds for low flow augmentation storage, and \$155,354 non-Federal contribution in kind for recreation facilities under the

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completed projects program. Project was authorized by Flood Control Act of 1958. Project name was changed from Huntington Lake, IN to J. Edward Roush Lake, IN effective 16 February 1997 by Public law 104-303, 12 October 1996.

Local Cooperation. Local interests must contribute in cash an amount equal to one percent of project first cost. State of Indiana has met this obligation. Contract with the Indiana Department of Natural Resources, approved by the Secretary of the Army May 17, 1974, provided for that agency to design and construct certain additional recreational facilities at Cecil M. Harden, Huntington, Mississinewa, Monroe and Salamonie Lakes under the cost shared category of the completed projects program.

Operations during fiscal year. New work: Replaced motor control center in tower. Maintenance: Routine maintenance was performed. During the 2003 flood season estimated damages of \$46,534,000 were prevented. Visitor expenditures were \$4,732,316.

Condition at end of fiscal year. Land acquisition and all major construction complete. Project was placed in operation January 9, 1969. Cost shared recreation facilities constructed by the State of Indiana under the completed projects program are complete.

36. MISSISSINEWA LAKE, IN

Location. Dam site is 7.1 miles above mouth of Mississinewa River, which flows into Wabash River about 2 miles upstream from Peru, IN. At flood control pool level, reservoir extends upstream about 28 miles, in Wabash, Grant, and Miami Counties, IN. (See U.S. Geological Survey map of Peoria, IN.)

Existing project. Provides for construction of a reservoir for flood control and allied purposes. It includes an earthfill dam 137 feet high and 8,100 feet long, gate-controlled outlet works, and an uncontrolled open spillway through right abutment. Total storage capacity of reservoir is 368,400 acre-feet, of which 345,100 acre-feet are reserved for flood control storage. Cost for completed new work is \$52,394,600 made up of \$23,791,816 Federal cost for the initial project, \$239,200 non-Federal contributed funds for low flow augmentation storage. \$174,392 Federal cost and \$174,392 non-Federal contribution in kind for recreation facilities under the completed projects program, and \$27,924,800 for major rehabilitation. Project was authorized by the Flood Control Act of 1958.

Local Cooperation. Local interests must contribute in cash an amount equal to 1 percent of project first cost. State of Indiana assumed this obligation. A contract with the Indiana Department of Natural Resources, approved by the Secretary of the Army in May 1974, provided for that agency to design and construct certain additional recreation facilities at Cecil M. Harden, Huntington, Mississinewa, Monroe and Salamonie Lakes under the cost-sharing category of the completed projects program.

Operations during fiscal year. New work: None. Maintenance: Construction contract for placement of 2600 feet of concrete cut-off wall in the right embankment 150' to 180' depth to rock foundation to

remediate poor foundation conditions was continued. The initial contract amount was \$29,800,000 and has a three-year performance period. After preliminary construction activity on roads, construction of the cut-off wall test section began April 4, 2002. During initial excavations the contractor experienced sudden and complete loss of bentonite slurry used to support the excavation. He then moved to the far end of the 100-foot test section and attempted another excavation with the same result. The contractor was issued a stop work order on May 17, 2002. Analysis of the problem has shown the upper layer of rock foundation contains excessive voids requiring pre-treatment with grout to enable the cut-off wall excavation to then proceed with minimal slurry loss. The grouting program was initiated on July 10, 2002, completed November 17, 2003, and will add up to \$20,000,000 to the contract cost. Cut-off wall excavation in the test section resumed October 2002 and was completed in February 2003. Construction of the cut-off wall resumed August 4, 2003 and continues. Project completion date is May 2005. Total cost of cut-off wall is now estimated at \$55,000,000. The project is on the HQUSACE High Priority List. During the 2003 flood season estimated damages of \$31,443,000 were prevented. Visitor expenditures were \$8,229,109.

Condition at end of fiscal year. Project was placed in operation in May 1968. Cost shared recreation facilities constructed by the State of Indiana under the completed projects program are complete. Construction continued on cut-off wall contract and construction was 46% complete at the end of September 2003. Because of the uncertainty regarding the conditions under which the embankment is performing, the Mississinewa Lake will be operated with restricted reservoir elevations until construction of the cut-off wall is complete.

37. MONROE LAKE, IN

Location. Dam is on Salt Creek, a tributary of White River, 25.9 miles above mouth, and 2 miles east of Harrodsburg, Monroe County, IN. At flood control pool level, reservoir will extend upstream 44 miles in Monroe, Brown, and Jackson Counties. (See U.S. Geological Survey map of Clear Creek, IN.)

Existing project. A reservoir for flood control and allied purposes. Dam is earth core and rock shell, with gate-controlled outlet works and uncontrolled open spillway. Total storage capacity is 441,000 acre-feet (258,800 for flood control and 159,900 for low flow augmentation.) Cost of completed new work is \$16,570,774 consisting of \$7,032,484 Federal funds, \$7,797,604 non-Federal contributed funds for low-flow regulation storage and \$870,343 Federal cost and \$870,343 non-Federal contribution in kind for recreation facilities under the completed projects program. Project was authorized by 1958 Flood Control Act, modifying comprehensive plan for Ohio River Basin.

Local Cooperation. Section 3, 1944 Flood Control Act applies. Local interests must contribute 54.1 percent of project cost, this being the proportion allocated to low-flow regulation feature, plus a capitalized amount representing that part of average annual maintenance and

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operation cost allocated to low-flow regulation. State of Indiana assumed this cost-sharing obligation. A contract with the Indiana Department of Natural Resources, approved by the Secretary of the Army in May 1974, provided for that agency to design and construct certain additional recreation facilities at Cecil M. Harden, Huntington, Mississinewa, Monroe and Salamonie Lakes under the cost-sharing category of the completed projects program.

Operations during fiscal year. New work. None. Maintenance: Routine maintenance was performed. During the 2003 flood season estimated damages of \$2,040,000 were prevented. Visitor expenditures were \$35,961,411.

Condition at end of fiscal year. Project is complete and was placed in operation in February 1965. Cost shared recreation facilities constructed by the State of Indiana under the completed projects program are complete.

38. NOLIN LAKE, KY

Location. Dam is on Nolin River 7.8 miles above its confluence with Green River, about 70 air miles southwest of Louisville, KY. Reservoir extends upstream about 57 miles and is in Edmonson, Grayson, Hart, and Hardin Counties, KY. (See U.S. Geological Survey maps of Nolin Reservoir and Dickeys Mill, KY.)

Existing project. A reservoir for flood control and allied purposes. Dam is rockfill-earth core type with gate-controlled outlet works, and uncontrolled open spillway. Total storage capacity is 609,400 acre-feet, of which 545,600 acre-feet is for flood control. For further details of project, see Annual Report for 1962, page 1124. Cost of new work is \$17,193,278 including \$2,594,274 for construction of recreation facilities. Project was selected for construction under general authorization for Ohio River Basin in 1938 Flood Control Act.

Local Cooperation. None required for authorized project. State of Kentucky contributed \$18,195 for increased width of dam for public road. Kentucky assumed responsibility of the Brier Creek site to establish a State Park in 1996. Improvements are planned by Kentucky.

Operations during fiscal year. New work: None. Maintenance: Routine maintenance was performed. During the 2003 flood season estimated damages of \$2,469,000 were prevented. Visitor expenditures were \$44,835,856.

Condition at end of fiscal year. Construction started in January 1959. Project was completed and placed in operation in March 1963.

39. OHIO RIVER BASIN (Louisville District)

Location. Works covered by this project are a series of levees, floodwalls, channel improvements, and reservoirs in Ohio River Basin within Louisville District.

Existing project. Individual projects considered in comprehensive plan within the Louisville District. (See Table 24-B for authorizing legislation and Table 24-I for cost and listing of projects in the basin plan.)

Operations during fiscal year. No costs were incurred except for the projects for which individual reports are given.

40. PATOKA LAKE, IN

Location. Dam site is in Dubois County, IN, 118.3 miles above mouth of Patoka River, and 50 miles west-northwest of New Albany, IN. Reservoir extends into Dubois, Orange, and Crawford Counties. (See Geological Survey map of Cuzco, IN.)

Existing project. Reservoir for flood control and allied purposes. Dam is earth and rock fill, 1,550 feet long and 85 feet high, with gate-controlled outlet works and uncontrolled open spillway. Total storage capacity is 301,600 acre-feet (121,000 for flood control and 167,500 for water supply and water quality control). Cost of new work is \$76,243,085 of which \$56,060,640 is Federal cost for other construction, and \$20,182,445 is non-Federal contribution for water supply storage and recreation facilities. Project was authorized by 1965 Flood Control Act, and emergency measures and snagging and clearing the Patoka River downstream of Patoka Lake to ensure effective operation of the project for flood control was directed by 1981 Appropriation Act for Energy and Water Development.

Local Cooperation. Local interests are required to reimburse the Federal Government for costs allocated to water supply storage presently estimated at 29.316 percent of the joint-use facilities cost, exclusive of interests, plus \$287,000 for the cost of operating and maintaining water supply storage for a period of 50 years, plus \$42,000 for the cost of major capital replacements required for water supply storage space for a period of 50 years. Local interests are also required to pay, contribute in kind, or repay (which may be through user fees) with interest, one-half of the separable first cost of the project allocated to recreation. Present laws of the State of Indiana require that agency to make cash contributions during construction of the project. Local interests must also agree to prevent encroachments on channel of Patoka River from dam to mouth, and to pay allocated initial and annual maintenance and operation costs for water supply storage. Formal assurances of local cooperation, executed by the Indiana Natural Resources Commission, were accepted August 27, 1970. Contracts with State of Indiana for water supply and recreation were approved by the Secretary of the Army November 2, 1970.

Operations during fiscal year. New work: None. Maintenance: Routine maintenance was performed. During the 2003 flood season estimated damages of \$4,680,000 were prevented. Visitor expenditures were \$218,903,069.

Condition at end of fiscal year. Construction was started in July 1972. Engineering studies are complete. Real Estate relocation work is complete. All major features are complete. Permanent impoundment was started in February 1978 and the project was placed in operation about August 1980.

41. ROUGH RIVER LAKE AND CHANNEL IMPROVEMENT, KY

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Location. Dam is on Rough River, 89.3 miles above its confluence with Green River, 160.3 miles above Ohio River, and about 60 miles southwest of Louisville, KY. Reservoir extends upstream about 30 miles and is in Breckinridge, Hardin, and Grayson Counties, KY. Channel improvement work is on Rough River, Barnett Creek, and West Fork of Barnett Creek. (See U.S. Geological Survey maps of McDaniels and Falls of Rough, KY.)

Existing project. Reservoir is for flood control and allied purposes. Dam is rolled earthfill type, with gate-controlled outlet works. Storage capacity is 334,380 acre-feet, of which 314,210 acre-feet is for flood control. Project also includes channel clearing of lower Rough River, and channel improvement on Barnett Creek, a tributary of Rough River. For further details, see page 1126 of Annual Report for 1962. Cost of completed new work is \$10,643,001 including \$890,008 Federal funds and \$22,612 non-Federal funds for construction of recreation facilities under the completed projects program. Existing project was selected for construction under general authorization for Ohio River Basin in 1938 Flood Control Act. Modification of previously approved plan to include channel improvement items was authorized by the 1944 Flood Control Act.

Local Cooperation. None required for construction of reservoir unit. Provisions of Section 3, Flood Control Act of 1936, are applicable to channel improvements. Assurances were obtained from Ohio County for channel improvement. Department of Parks, Commonwealth of Kentucky, has undertaken management of certain lands and recreation facilities in accordance with license granted by Secretary of the Army on August 18, 1961. A contract with the Commonwealth of Kentucky to improve and pave road at the Below Dam Area - State Park under the cost-sharing category of the completed projects program was approved by the Secretary of the Army November 4, 1977.

Operations during fiscal year. New work: None. Maintenance: Routine maintenance was performed. Deficiencies in the dam at Rough River have been identified through Dam Safety Assurance Program activities. Deficiencies existing at the dam are as follows: Embankment – a sinkhole formed on the downstream face of the dam in fall 2002. Indications are it resulted from the lack of a filter between the interior of the dam and a buried downstream rock toe. Stilling Basin – preliminary analysis show the stilling basin is inadequate resulting in expensive periodic repairs using Operation and Maintenance funds. Basin needs to be extended as much as double its present length. Spillway – Preliminary analysis show that the spillway is inadequate. Work was initiated to prepare a Dam Safety Assurance Evaluation Report (DSAER) to define scope of corrective actions needed for the deficiencies and obtain authorization and funding to accomplish them. During the 2003 flood season estimated damages of \$10,677,000 were prevented. Visitor expenditures were \$52,775,379.

Condition at end of fiscal year. Construction started in November 1955 and reservoir was placed in operation

in June 1959. Land acquisition and all major items of construction and relocation are complete. Preparation of the DSAER continued and is expected to be completed March 2004.

42. SALAMONIE LAKE, IN

Location. Dam site is 3.1 miles above mouth of Salamonie River, which enters Wabash River about 6 miles upstream from Wabash, IN. Reservoir extends upstream about 27 miles at flood control pool and lies in Wabash and Huntington Counties, IN. (See U.S. Geological Survey maps of Lagro and Majenica, IN.)

Existing project. Provides for construction of a reservoir for flood control and allied purposes. It includes an earthfill dam with a maximum height of 133 feet and length of 6,100 feet, gate-controlled outlet works with a 16-foot-diameter conduit and an uncontrolled open spillway through right abutment. Total storage capacity of reservoir is 263,600 acre-feet, of which 250,500 acre-feet is for flood control storage. Cost for new work is \$17,039,321 made up of \$16,244,356 Federal cost for the initial project and \$163,867 non-Federal contributed funds for low-flow augmentation storage and \$315,549 Federal cost and \$315,549 non-Federal contribution in kind for recreation facilities under the completed projects program. Project was authorized by Flood Control Act of 1958.

Local Cooperation. Local interests must contribute in cash an amount equal to one percent of project first cost. State of Indiana assumed this obligation. A contract with the Indiana Department of Natural Resources, approved by the Secretary of the Army in May 1974, provided for that agency to design and construct certain additional recreation facilities at Cecil M. Harden, Huntington, Mississinewa, Monroe, and Salamonie Lakes under the cost-sharing category of the completed projects program.

Operations during fiscal year. New work: Repaired sluice gate. Maintenance: Routine maintenance was performed. During the 2003 flood season estimated damages of \$38,584,000 were prevented. Visitor expenditures were \$13,618,971.

Condition at end of fiscal year. Land acquisition and all major construction and relocation contracts are complete. Reservoir was placed in operation in spring 1967. Cost shared recreation facilities constructed by the State of Indiana under the completed projects program are complete.

43. TAYLORSVILLE LAKE, KY

Location. Dam site is in Spencer County, KY, 60.0 miles above the confluence of Salt River and Ohio River, 4 river miles above Taylorsville and 36.9 river miles above Shepherdsville, KY. (See U.S. Geological Survey map of Taylorsville, KY.)

Existing project. A reservoir for flood control and allied purposes. Dam is an earth and rock fill structure, 164 feet high and 1,280 feet long. Outlet works are slide gate controlled and spillway is uncontrolled open cut. Total storage capacity is 291,670 acre-feet (211,230 for flood control, winter months), and 52,245 for water quality and fish and wildlife. Cost of completed new

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work is \$87,004,456, including \$82,991,363 federal funds and \$4,013,093 non-federal funds. Project was authorized by 1966 Flood Control Act.

Local Cooperation. Local interests must agree to administer project land and water areas for recreation; pay, contribute in kind, or repay (which may be through user fees) with interest one-half of the separable first costs of the project allocated to recreation; bear all costs of operation, maintenance, and replacement of recreation lands and facilities under P.L. 89-72. Local interests must also agree to prevent encroachments on flow-carrying capacities of stream channels below the reservoir to the extent needed to provide reasonably effective reservoir operation. Commonwealth of Kentucky has indicated intent to fulfill requirements for recreation cost sharing and has assumed responsibility for channel encroachments and pollution control. The Commonwealth furnished assurance agreements covering prevention of encroachment on capacity of stream channels in April and May 1973 and executed the recreation cost sharing contract in April 1973. On April 2, 1980, the U.S. District Court for the Western District of Kentucky ruled that the 1973 recreation cost sharing contract between the Commonwealth and the United States that provided for repayment after completion was invalid under the Kentucky Constitution which prohibits one General Assembly from obligating future appropriations that would be binding on a subsequent legislature. In response to the Court's ruling, the Commonwealth and the United States entered into a new contract providing for cash contributions. Contract was approved by the Secretary of the Army June 11, 1980. The contract was found to be valid and enforceable by the Court July 14, 1980.

Operations during fiscal year. New work: None. Maintenance: Routine maintenance was performed. During the 2003 flood season estimated damages of \$1,140,000 were prevented. Visitor expenditures were \$23,179,135.

Condition at end of fiscal year. Engineering and design studies are complete. Land acquisition is 100 percent complete. Construction was started in June 1974. All major construction items are complete. The dam gates were closed in January 1983 for permanent impoundment. Dedication ceremony was May 28, 1983. Two sections of county road were washed out by heavy rainfall. Both sections were originally upgraded for project operation prior to washout. The repairs were completed by the Corps in 1996-97 at a cost of \$700,000.

44. WABASH RIVER BASIN

Location. Works covered by this project are located in the Wabash River Basin, a drainage area of 33,100 square miles, covering parts of Indiana, Illinois, and Ohio.

Existing project. One local protection project and five reservoir projects were authorized for this basin plan. (See Table 24-B for authorizing legislation and Table 24-J for project list and total cost of basin plan.)

45. WEST FORK OF MILL CREEK LAKE, OH

Location. Dam is on West Fork of Mill Creek 6.5

miles above its junction with Mill Creek and 2 miles northeast of Mount Health, OH, and 10 miles north of downtown Cincinnati. Reservoir extends upstream about 3 miles and is in Hamilton County, OH. (See U. S. Geological Survey map of Glendale, OH.)

Existing project. An earth embankment dam and a reservoir for flood control and allied purposes. Total storage capacity of reservoir is 11,300 acre-feet, of which 9,850 acre-feet is for flood control. For further details, see page 1119 of Annual Report for 1962. Cost of completed new work is \$4,722,463 made up of \$3,092,941 Federal cost for the initial project, \$520,800 non-Federal cost for sewer relocation and dam, \$50,000 non-Federal contributed funds in fulfillment of project authorization and \$529,361 Federal cost and \$529,361 non-Federal contribution in kind for recreation facilities under the completed projects program. Existing project selected for construction under additional authorization for Ohio River Basin in 1946 Flood Control Act.

Local Cooperation. Local interests were to release necessary land under their control and give assurance that future channel encroachment below dam site would be prevented. For enlargement of reservoir to include a conservation pool, local interests would contribute one-half additional cost of such pool, including one-half cost of relocation of sanitary sewer, and agree to hold the United States free from damages resulting from its provision. Board of County Commissioners of Hamilton County, Ohio, adopted a resolution October 8, 1947, signifying willingness to fulfill requirements including provision of conservation pool. Assurances were executed on same date. A contract with the United States for relocation of sanitary sewer outside reservoir area in order to include conservation pool in project was accepted by Hamilton County, in which the United States paid one-half cost of such relocation work. Hamilton County Commissioners furnished \$50,000, required as a local contribution toward additional cost of providing conservation pool. Hamilton County Park District has undertaken development and management of recreation facilities in reservoir area for use of the public in accordance with the license granted by Secretary of the Army on October 31, 1951. Contract for cost shared recreation development under the completed works program was executed by the Board of Park Commissioners, Hamilton County Park District, Ohio, in September 1975 and approved by the Chief of Engineers in December 1975.

Operations during fiscal year. New work: None. Maintenance: Routine maintenance was performed. During the 2003 flood season estimated damages of \$1,090,000 were prevented. Visitor expenditures were \$25,741,397.

Condition at end of fiscal year. Construction started in March 1949 and reservoir was placed in operation in December 1952. Project is complete. Cost shared recreation development under the completed projects program is complete.

46. WILLIAM H. HARSHA LAKE, OH

Location. Dam site is on East Fork of Little Miami

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River between Batavia and Williamsburg, OH, about 6.0 miles above Batavia and 32.6 miles above mouth of the Little Miami River. Entire project lies in Clermont County, OH. (See U.S. Geological Survey map of Batavia, OH.)

Existing project. A reservoir for flood control and allied purposes. It includes an earthfill dam, outlet works, an uncontrolled saddle spillway, and a dike to close a saddle north of spillway. Total storage capacity of reservoir is 294,800 acre-feet, of which 210,600 acre-feet is reserved for flood control storage. Cost of completed new work is \$52,023,157 and a estimated \$3,485,840 non-Federal reimbursement for water supply storage. Existing project was authorized by general authorization for Ohio River Basin in 1938 Flood Control Act. Project name was changed from East Fork Lake to William H. Harsha Lake effective January 4, 1981, by Public Law 96-383, October 6, 1980.

Local Cooperation. None required. However, the State of Ohio requested inclusion in the project of storage for future municipal and industrial water supply uses. Contract with State of Ohio for water supply storage under provisions of Water Supply Act of 1958, as amended, was approved by Secretary of the Army, May 20, 1970. Under terms of contract, State will reimburse the Federal Government for costs allocated to water supply storage over a period not to exceed 50 years after use of this storage is initiated plus estimated annual amount for cost of operation, maintenance, and major capital replacements required for the water supply facilities.

Operations during fiscal year. New work: None. Maintenance: Routine maintenance was performed. During the 2003 flood season estimated damages of \$1,462,000 were prevented. Visitor expenditures were \$24,527,899.

Condition at end of fiscal year. Construction was started in May 1970. Project is complete and reservoir was placed in operation in February 1978.

47. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Flood Control Act of June 22, 1936, and subsequent acts require local interests to maintain and operate local protection projects in accordance with regulations prescribed by Secretary of the Army. Inspections were made to determine extent of compliance and to advise interests as necessary to measures required to correct deficiencies. (See Table 24-K for the latest dates of inspection performed on the local protection projects, channel improvements, and bank revetments).

Fiscal year costs were \$281,297. Total costs to September 30, 2003, were \$6,200,922.

48. OTHER AUTHORIZED FLOOD CONTROL PROJECTS

See Table 24-E.

49. FLOOD CONTROL WORKS UNDER SPECIAL AUTHORIZATION

Environmental restoration activities pursuant to Section

1135, 1986 Water Resources Act, as Amended. Costs for fiscal year were \$90,507 for five planning & design analysis; \$2,035 for one project under construction; \$95 for one terminated study; \$992 for one preliminary restoration plan; and \$16,175 for coordination activities.

Reflects federal cost only, for full costs see table 24-L.

Flood control activities pursuant to Section 205, 1948 Flood Control Act, Public Law 858, 80th Congress, as amended. Cost for fiscal year were \$5,103 for planning and design analysis; \$717,710 for fifteen feasibility reports; \$97,894 for plans and specifications on two projects; \$1,210,761 for two projects under construction; \$54,059 for four projects completing construction; \$70,187 for terminated studies on four projects; and \$20,687 for coordination activities.

Reflects federal cost only, for full costs see table 24-L.

Emergency bank protection (Section 14, 1946 Flood Control Act, Public Law 526, 79th Congress). Costs for fiscal year were \$172,692 for nine planning and design analyses; \$18,788 for one project completing construction; \$60,908 for six study terminations; and \$20,307 for coordination activities.

Reflects federal cost only, for full cost see table 24-L.

Aquatic Ecosystems Restoration (Section 206). Cost for fiscal year was \$227,718 for seven planning and design analyses; \$11,427 for one feasibility report; \$330 for three study terminations; \$19,127 for coordination activities; and \$49,814 for six preliminary restoration plans.

Clearing and Snagging (Section 208). Cost for fiscal year was \$466 for two study terminations.

EMERGENCY MANAGEMENT

Emergency flood control; activities pursuant to Public Law 99, 84th Congress, and antecedent legislation. The Louisville District participated in the following emergency management activities.

Rough River Lake Dam . Heavy rains (6.4 inches) from the remnants of Hurricane Isidore fell on the district in late September 2002 causing lake levels to rise extremely fast. As part of a routine inspection when lake levels rise this fast, depressions were observed on the downstream face of the Rough River Lake Dam. Rough River Lake is a flood control lake owned and operated by the Corps of Engineers. The District Emergency Operations Center (EOC) raised its activation level to Level II and deployed Dam Safety personnel and the District Deputy Commander to the dam to investigate the situation. Lake and Dam Safety personnel continued to monitor and investigate the situation for the next two weeks. It was finally determined the dam was stable and the depressions were not catastrophic.

Illinois Earthquake. An earthquake with a magnitude of 2.9 occurred on January 3, 2003, with an epicenter located six miles from New Haven, Illinois. District EOC personnel coordinated and worked with Illinois, Indiana and Kentucky Emergency Management Agencies to

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ascertain the extent of any damages and to determine if any response efforts were necessary. No significant damage occurred and no further activity was required.

Lower Ohio River Flooding. Heavy rains fell once again across the district during late February 2003. This caused several streams in Kentucky and subsequently the lower Ohio River to rise above flood stage. The EOC raised the level of activation and began monitoring the situation. Close coordination occurred with and information was provided to the Kentucky and Indiana Emergency Management Agencies during this event. The EOC also contacted and coordinated with the local flood protection projects along the Ohio to assist them in preparing for the high water. This was to ensure their projects were ready and functioning properly so flood fight operations could begin if necessary.

Illinois and Tennessee Tornadoes. A series of severe thunderstorms and tornadoes struck across Illinois, Indiana and Tennessee during May 6 through May 11, 2003. Tennessee received a Presidential Declaration first. The majority of the damage in Tennessee occurred in the Memphis District Area of Operation and by agreement between MVD and LRD, MVD took the lead in Tennessee. Subsequently the State of Illinois, a MVD responsibility, received a declaration. Since MVD was already responsible for Tennessee, LRD assumed the lead for Illinois. Mr. Steve Rager, District Emergency Manager, was deployed by HQ USACE as the ESF#3 Team Leader. The Louisville District was assigned as the Lead District. Temporary Housing was the only mission that was assigned. The St. Paul Housing PRT was the next PRT in priority to be deployed and was assigned to LRL for command and control for the mission. The Louisville District together with the St. Paul District PRT installed twenty-six travel trailers to serve as temporary housing until the affected residents could rebuild their destroyed homes.

Ms. Denise LaDue with the Emergency Management and Security Branch was deployed to Tennessee in late June in support of the debris clean up mission from these same tornadoes. This effort was an experiment between the Corps and FEMA to determine if Corps personnel could serve as Public Assistance Officers for debris matters. Ms. LaDue was trained and sent out to supervise FEMA and Corps personnel involved in the debris removal mission and more directly to assist the local governments in their debris removal mission. Ms. LaDue's outstanding performance caused FEMA to declare the experiment a success and it is now a part of their response plans. Ms. LaDue is the first of an elite cadre that will be performing this mission.

Indiana Flooding. Heavy rains fell across northern and central Indiana during the early days of July 2003. The District EOC once again raised its activation level. The state of Indiana is the responsibility of the Louisville District in accordance with ER 500-1-28, the Response Planning Guide, and subsequent LRD guidance. Flood fighting activities, assets and personnel belonging to the

Detroit and Chicago Districts were placed under the operational control of the Louisville District Commander. Mr. Dan Frank with the Emergency Management and Security Branch was deployed to the Indiana EOC to serve as the District LNO. The GIS element of the branch produced several inundation maps to help the state and locals determine where to flood fight and where to evacuate parts of the community. A total of 120,000 sand bags were provided to the state of Indiana along with eight 6-inch pumps that were provided to the City of Ft Wayne. Four other 6-inch pumps were staged at J.E. Roush Lake for possible future use. These pumps were the property of the Chicago District and they greatly assisted in the flood fighting effort. The three Corps lakes in the Upper Wabash River basin received record rainfalls and either reached or approached record pools. As a result, Mr. Don Robison with Engineering Division was assigned to the EOC to serve as the Dam Safety Mission Manager. Dam Safety personnel were deployed to each of the three lakes to monitor the dams. J.E. Roush's pool rose to within one-tenth of an inch from flowing over the top of the gate. This elevation was an extreme record pool. Mr. Steve Holmstrom with Engineering Division was also assigned to the EOC to serve as the H&H Mission Manager.

Middle Wabash River Flooding. Heavy rains fell over central Indiana on 29 August. The EOC raised its activation level in support of this event. The EOC deployed Mr. Troy O'Neal and Mr. Jeff Schaefer with Engineering Division to Martinsville and Anderson, Indiana, respectively to assist the locals in their flood fighting efforts. The GIS element of the Branch furnished inundation maps to assist the locals in their flood fighting efforts and evacuation plans.

Hurricane Isabel. Hurricane Isabel, a Category 4 storm, struck the east coast of the United States in late September 2003. Six states were affected and received major damage. Mr. Steve Rager, District Emergency Manager, was deployed by HQ USACE four days ahead of the storm to FEMA Region III HQ to serve on the Executive Level Planning Team and to prepare the six states for a worst-case scenario. Plans were written, personnel were deployed and supplies were staged as a result of the efforts of this team. The team was also credited as having reduced the amount of grief the public suffered from the storm by being better prepared. Mr. Rager was redeployed by HQ USACE to the State of Maryland to serve as the EFS#3 Team Leader. Maryland missions included providing ice, water, debris removal, harbor reconstruction and beach restoration. In addition to this effort, the Branch GIS element headed by Mr. Terry Siemsen performed an extremely great service. The GIS element executed their normally assigned mission of providing hurricane damage models and the planners and responders were much better prepared. These models are used across the entire Corps of Engineers. These models helped FEMA Region III and Region IV determine required supplies, where to stage the supplies, number of personnel needed, and plan for debris removal requirements.

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Mr. Kevin Jasper with Planning, Project and Programs Management deployed to Virginia to serve as the Debris Subject Matter Expert to assist the State of Virginia in their debris removal efforts. Mr. Jasper was the second Louisville District person to perform this mission that Ms. LaDue initiated.

Critical Project Security Program (CPSP): Infrastructure Security Assessments have been conducted at all eleven **critical** USACE facilities in the Louisville District: Smithland L&D, L&D #52, John T. Myers L&D, Newburgh L&D, Cannelton L&D, McAlpine L&D, Markland L&D, West Fork Lake, Brookville Lake, Mississinewa Lake, and C.J. Brown Dam & Reservoir. The assessment reports for these projects have been approved by LRD and HQUSACE.

HQUSACE has funded the **critical** projects listed below for upgraded security, as identified in RAM-D reports: Smithland (\$1,694,000); Markland L&D (\$2,622,000); McAlpine L&D (\$3,523,000); Cannelton L&D (\$1,841,000); Newburgh L&D (\$1,998,000); John T. Myers L&D (\$1,995,000); L&D 52 (\$1,289,000); West Fork Lake (\$669,000).

Design charrettes have been conducted at the eight Phase I funded projects listed above. The follow-up 35% design packages have been completed for these projects, and the Independent Technical Review (ITR) team has completed its review of all those projects. The ITR has also completed their review of the 95% design which was submitted for Smithland and Markland. The IDIQ contractor is currently completing their designs for McAlpine, John T. Myers, Newburgh and Cannelton Locks & Dams. Those 95% designs will be forwarded for review as soon as they are received. The 95% designs for Locks & Dam 52 and West Fork Lake have not yet been awarded to the contractor. Requests for proposals were submitted to the District's IDIQ contractor for design/build delivery orders at all eight Phase I projects. The IDIQ has provided proposals for all eight projects, and several delivery orders have been awarded for physical, electrical and electronic security improvements. We have received approval to proceed with procurement and construction of fencing and lighting improvements at Smithland and Markland Locks & Dams. Our IDIQ contractor has initiated procurement of those materials at both sites, and the actual construction of fencing and lighting improvements has begun at Smithland. The current expenditures for the Critical Project Security

Program design and initial construction totals approximately \$1,672,000. Negotiations for the remaining improvements noted below are currently in progress: West Fork Lake (all security improvements); Locks & Dam 52 (all security improvements); Markland L&D (highway bridge improvements).

Force Protection Infrastructure Security Assessments have been completed at 14 of the district's 19 remaining non-critical USACE Facilities.

Costs for fiscal year 2003 were: \$260,146 for Disaster Preparedness; \$808,759 in reimbursable funds for emergency operations; \$17,485 for inspection of non-federal flood control works; and, \$489,008 for emergency levee rehab for non-federal flood control works under PL 84-99.

General Investigations

50. SURVEYS

Fiscal year costs was \$354,625 for one navigation study; \$217,144 for eight flood damage prevention studies; \$237,762 for seven special studies; \$24,264 for one review of authorized projects; and \$148,647 for four miscellaneous activities.

Reflects Federal cost only, for full cost see Table 24-M.

51. PRECONSTRUCTION ENGINEERING AND DESIGN

Fiscal year costs were \$888,364 for one Navigation project; \$705 for two flood control projects.

Reflects Federal cost only, for full cost see Table 24-M.

52. COORDINATION WITH OTHER AGENCIES

Fiscal year total cost was \$7,994 for one coordination with other agencies project and \$89,220 for six planning assistance to states projects.

Reflects federal cost only, for full costs see Table 24-M.

53. COLLECTION AND STUDY OF BASIC DATA

Fiscal year total cost was \$134,277 for six flood plain management projects; and \$4,740 for one hydrologic study.

TABLE 24-A
CONTINUED

COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	2000	2001	2002	2003	Total to Sep 30, 2003
Navigation - Channels and Harbors							
1	Open Channel Work, Licking River	New Work					
		Approp.	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
		Cost	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
		Maint.					
		Approp.	0	0	0	0	187,816
		Cost	0	0	0	0	187,816
Navigation - Locks and Dams							
3	Green and Barren Rivers, KY	New Work					
		Approp.	0	0	0	0	13,808,222 ¹
		Cost	0	0	0	0	13,808,222 ¹
		Maint.					
		Approp.	1,681,014	1,305,186	1,428,205	1,938,658	53,683,360 ^{2,3}
		Cost	1,681,016	1,305,039	1,422,384	1,939,630	52,165,337
4	Kentucky River, KY	New Work					
		Approp.	0	1,996,000	390,875	0	6,563,624 ⁶²
		Cost	0	104,780	999,214	925,077	6,205,819
		Maint.					
		Approp.	2,953,554	1,944,654	1,071,921	76,265	85,364,826 ^{4,5,45}
		Cost	2,952,266	1,943,526	1,069,220	86,112	85,364,790 ^{4,5,46}
		Minor Rehab.					
		Approp.	0	0	0	0	556,956
		Cost	0	0	0	0	556,956
Flood Control, Local Protection							
8	Beargrass Creek	New Work					
		Approp.	0	70,000	377,500	2,549,000	2,996,500 ⁶³
		Cost	0	68,367	357,076	2,559,558	2,985,001 ⁶⁴
9	Duck Creek	New Work					
		Approp.	1,825,000	362,700	1,611,400	7,220,700	13,235,800 ⁵⁵
		Cost	1,720,169	545,925	1,633,199	6,779,924	12,765,705 ⁵⁶
10	Holes Creek, OH	New Work					
		Approp.	2,935,915	201,000	78,408	786,067	8,172,265 ⁵¹
		Cost	2,584,891	424,950	528,428	679,855	8,061,982 ⁵²
11	Indianapolis CSO	New Work					
		Approp.	0	0	16,000	244,000	260,000 ⁶⁷
		Cost	0	0	14,948	29,965	44,913
12	Louisville Waterfront Park	New Work					
		Approp.	0	100,000	20,000	0	120,000
		Cost	0	60,504	55,936	3,265	119,704
13	Mill Creek, OH	New Work					
		Approp.	2,237,734	361,000	1,874,700	4,568,000	107,898,376 ⁶
		Cost	1,968,526	517,123	1,835,349	4,709,388	107,865,763 ⁷
14	Ohio Environmental Infrastructure	New Work					
		Approp.	0	620,000	1,510,000	277,000	2,407,000
		Cost	0	566,417	828,461	130,037	1,524,915

TABLE 24-A
CONTINUED

COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	2000	2001	2002	2003	Total to Sep 30, 2003
15	Ohio River Flood Protection (Indiana Shoreline), IN	New Work Approp. Cost	544,370 1,354,457	214,146 1,270,049	(1,446) 121,359	(5,304) 2,301	4,270,866 ⁵⁷ 4,265,606 ⁵⁸
16	Ohio River Greenway	New Work Approp. Cost	0 0	607,000 601,034	625,000 606,384	954,000 778,023	2,186,000 ⁶⁸ 1,985,441
17	Pond Creek, KY	New Work Approp. Cost	1,667,000 1,694,191	4,185,000 4,004,512	378,000 627,813	858,152 737,958	8,848,336 ⁵³ 8,516,749 ⁵⁴
18	Pond Creek Floodplain Evacuation	New Work Approp. Cost	0 0	75,000 13,599	37,000 76,940	(1,152) 20,309	110,848 132,309
19	Salyersville, KY	New Work Approp. Cost	0 137,610	0 68,640	(700,000) 4,321	0 0	8,480,019 ¹⁰ 8,416,441 ¹¹
20	Southwestern Jefferson County, KY	New Work Approp. Cost	(6500) 3,612	0 0	(7,600) (33,950)	(121,012) (87,300)	60,090,108 60,089,801
21	Southern & Eastern, KY	New Work Approp. Cost	564,000 642,397	1,000,00 292,850	0 713,889	1,428,000 170,169	3,937,000 ⁵⁹ 2,051,412 ⁶⁰
22	Wabash River New Harmony, IN	New Work Approp. Cost	(823,209) 61,229	1,407,609 2,577,710	137,593 360,864	(17,561) 17,834	3,034,433 ⁸ 3,034,433 ⁹
23	White River, Indpls Central Waterfront, IN	New Work Approp. Cost	7,849,000 10,630,509	9,980,000 7,591,011	9,000,000 6,678,694	4,227,000 3,739,984	49,056,000 ⁶⁹ 42,330,885
24	White River, Indpls (North), IN	New Work Approp. Cost	155,000 128,835	983,700 565,646	1,551,200 1,758,846	4,857,300 3,769,595	7,547,200 ⁶⁵ 6,222,922 ⁶⁶
Flood Control - Reservoirs							
25	Barren River Lake, KY	New Work Approp. Cost	0 0	0 0	0 0	0 0	27,479,200 ¹² 27,479,717 ¹²
		Maint. Approp. Cost	2,197,732 2,201,002	2,478,457 2,472,913	2,413,729 2,406,559	2,626,968 2,591,726	43,783,193 ^{13,14,15} 43,735,123 ^{13,14,15}
26	Brookville Lake, IN	New Work Approp. Cost	0 0	0 0	0 0	0 0	45,402,565 ¹⁶ 45,402,565 ¹⁶
		Maint. Approp. Cost	811,685 811,022	699,618 699,959	764,500 657,157	642,960 748,055	14,800,014 ⁴⁷ 14,797,041 ⁴⁷

TABLE 24-A
COST AND FINANCIAL STATEMENT
CONTINUED

See Section in Text	Project	Funding	2000	2001	2002	2003	Total to Sep 30, 2003	
27	Buckhorn Lake, KY	New Work						
		Approp.	0	0	700,000	0	12,466,206	¹⁷
		Cost	0	0	346,586	125,006	12,237,798	¹⁷
		Maint.						
		Approp.	1,584,708	1,653,171	1,487,094	1,291,101	27,362,080	¹⁸
		Cost	1,585,222	1,652,161	1,445,706	1,313,846	27,342,327	¹⁸
28	Caesar Creek Lake, OH	New Work						
		Approp.	0	0	0	0	62,881,010	
		Cost	0	0	0	0	62,881,010	
		Maint.						
		Approp.	1,380,026	1,252,042	1,202,171	1,270,437	21,788,997	⁴⁸
		Cost	1,380,586	1,252,043	1,176,978	1,291,562	21,784,909	⁴⁸
29	Cagles Mill Lake, IN	New Work						
		Approp	0	0	0	0	4,369,997	¹⁹
		Cost	0	0	0	0	4,369,997	²⁰
		Maint.						
		Approp.	666,441	653,388	705,525	640,416	14,335,700	
		Cost	667,216	652,421	677,173	662,271	14,328,236	
30	Carr Creek Lake, KY	New Work						
		Approp.	0	0	1,000,000	0	51,854,826	²¹
		Cost	0	0	5,252	1,026	50,861,104	²¹
		Maint.						
		Approp.	1,608,858	1,367,678	1,643,629	0	25,452,341	²²
		Cost	1,610,528	1,369,048	1,626,096	0	25,434,808	²²
31	Cave Run Lake, KY	New Work						
		Approp.	0	0	0	0	81,159,541	²³
		Cost	0	0	0	0	81,159,541	²³
		Maint.						
		Approp.	984,129	887,116	872,413	744,165	16,732,120	⁴⁹
		Cost	984,815	885,737	843,419	771,040	16,728,621	⁴⁹
32	Cecil M. Hardin Lake, IN	New Work						
		Approp.	0	0	0	0	6,987,807	²⁴
		Cost	0	0	0	0	6,987,807	²⁴
		Maint.						
		Approp.	757,175	791,012	693,058	650,789	17,594,317	
		Cost	756,606	790,491	665,957	676,239	17,588,814	
33	Clarence J. Brown Dam & Reservoir, OH	New Work						
		Approp.	0	0	0	0	22,083,660	
		Cost	0	0	0	0	22,083,660	
		Maint.						
		Approp.	839,262	770,716	842,097	981,257	14,966,362	⁶¹
		Cost	845,135	770,717	806,573	1,005,017	14,954,599	⁶¹
34	Green River Lake, KY	New Work						
		Approp.	0	0	0	0	33,462,330	²⁵
		Cost	0	0	0	0	33,462,339	²⁵
		Maint.						
		Approp.	2,171,248	2,484,281	2,582,226	2,145,346	39,059,768	²⁶
		Cost	2,148,069	2,507,644	2,552,101	2,151,679	39,035,617	²⁶

TABLE 24-A
COST AND FINANCIAL STATEMENT
CONTINUED

See Section in Text	Project	Funding	2000	2001	2002	2003	Total to Sep 30, 2003
35	J. Edward Roush Lake, IN	New Work					
		Approp.	0	0	0	0	19,621,777 ²⁷
		Cost	0	0	0	0	19,621,777 ²⁸
		Maint.					
		Approp.	852,598	850,326	689,183	805,401	16,192,579
36	Mississinewa Lake, IN	Cost	850,706	853,814	659,676	778,369	16,135,399
		New Work					
		Approp.	0	312,000	11,262,000	16,350,800	52,304,600 ²⁹
		Cost	0	307,007	11,243,752	16,348,887	52,279,446 ²⁹
		Maint.					
37	Monroe Lake, IN	Approp.	1,750,914	803,680	739,138	662,738	16,748,507
		Cost	1,747,364	804,439	730,674	672,343	16,745,997
		New Work					
		Approp.	0	0	0	0	16,570,774 ³⁰
		Cost	0	0	0	0	16,570,774 ³⁰
38	Nolin Lake, KY	Maint.					
		Approp.	689,483	676,347	651,559	643,789	16,635,510 ³¹
		Cost	689,478	675,422	629,000	665,872	16,634,028 ³¹
		New Work					
		Approp.	0	0	0	0	17,193,278 ³²
39	Ohio River Basin Louisville District	Cost	0	0	0	0	17,193,278 ³³
		Maint.					
		Approp.	2,379,432	2,210,711	2,062,665	2,085,062	45,858,852 ³⁴
		Cost	2,383,913	2,205,983	2,044,604	2,100,068	45,851,024 ³⁴
		New Work					
40	Patoka Lake, IN	Approp.	0	0	0	0	1,526,142
		Cost	0	0	0	0	1,526,142
		Maint.					
		Approp.	266,500	2,676,000	(16,308)	0	76,629,008 ³⁵
		Cost	238,642	2,683,093	4,458	0	76,243,085 ³⁶
41	Rough River Lake & Channel Improvement, KY	Maint.					
		Approp.	657,069	578,774	690,063	608,299	12,568,275
		Cost	672,789	577,686	669,626	628,977	12,567,426
		New Work					
		Approp.	0	0	0	0	10,643,001 ³⁷
42	Salamonie Lake, IN	Cost	0	0	0	0	10,643,001 ³⁷
		Maint.					
		Approp.	2,393,004	2,358,397	2,098,460	2,511,657	44,717,091 ³⁸
		Cost	2,329,678	2,381,912	2,125,338	2,448,593	44,636,029 ³⁸
		New Work					
43		Approp.	0	0	0	0	17,039,321 ³⁹
		Cost	0	0	0	0	17,039,321 ⁴⁰
		Maint.					
		Approp.	730,832	667,980	573,391	546,848	13,967,854
		Cost	730,918	667,519	556,276	555,858	13,958,661

TABLE 24-A
COST AND FINANCIAL STATEMENT
CONTINUED

See Section in Text	Project	Funding	2000	2001	2002	2003	Total to Sep 30, 2003
43	Taylorsville Lake, KY	New Work					
		Approp.	0	0	0	0	87,004,456 ⁴¹
		Cost	0	0	0	0	87,004,456 ⁴²
		Maint.					
		Approp.	1,066,621	834,249	808,328	755,318	16,337,264
		Cost	1,047,179	857,795	786,951	765,365	16,325,900
45	West Fork of Mill Creek Lake, OH	New Work					
		Approp.	0	0	0	0	4,722,463 ⁴³
		Cost	0	0	0	0	4,722,463 ⁴³
		Maint.					
		Approp.	363,362	357,116	414,779	1,104,124	10,972,192
		Cost	363,362	356,422	393,553	489,144	10,335,293
46	William H. Harsha Lake, OH	New Work					
		Approp.	0	0	0	0	52,023,157 ⁴⁴
		Cost	0	0	0	0	52,023,157 ⁴⁴
		Maint.					
		Approp.	814,294	719,366	780,330	767,739	15,131,622 ⁵⁰
		Cost	814,342	718,866	753,229	792,328	15,128,608 ⁵⁰

¹ Includes \$85,000 public works funds.

² Includes \$2,000 emergency relief funds, \$204,444 "maintenance and operation of dams and improvements of navigable waters" and \$3,842,667 expended from 1888 to 30 June 1936, for operation and care from permanent indefinite appropriation.

³ Includes \$725,715 from Productive Employment Appropriation Act (PL 98-8) of 1983.

⁴ Includes \$316,871 under "maintenance and operation of dams and other improvements of navigable waters", and \$6,405,372 expended between July 5, 1885 and June 30, 1937 on operation and care from permanent indefinite appropriation.

⁵ Includes \$149,700 from Productive Employment Appropriation Act (PL 98-8) of 1983.

⁶ Includes \$52,734 in contributed funds.

⁷ Includes \$66,479 in contributed funds.

⁸ Includes \$717,663 in contributed funds.

⁹ Includes \$717,664 in contributed funds.

¹⁰ Includes \$550,019 contributed funds.

¹¹ Includes \$541,992 contributed funds.

¹² Includes \$2,224,948 Code 711 funds, \$110,107 Code 713 Federal funds and \$108,418 Code 713 non-Federal funds.

¹³ Includes \$100,000 Supplemental funds.

¹⁴ Includes \$326,900 Special Recreation Use Fees.

¹⁵ Includes \$668,025 "maintenance & operation of dams and other improvements of navigable water".

¹⁶ Includes \$7,497,492 contributed funds and \$100,706 Code 711 funds.

¹⁷ Includes \$61,451 public work acceleration executive 1963 funds, \$143,088 Code 711 funds, and \$243,619 Code 712 funds.

¹⁸ Includes \$52,240 Special Recreation Use Fees and \$336 "maintenance and operation of dams and other improvements of navigable water."

¹⁹ Includes \$35,814 Code 711 funds, \$113,321 Code 713

funds, and \$113,094 contributed funds.

²⁰ Includes \$35,814 Code 711 funds, \$113,321 Code 713 funds, and \$113,094 contributed funds.

²¹ Includes \$76,724 Code 711 funds.

²² Includes \$51,854 Special Recreation Use Fees.

²³ Includes \$6,900,000 of U.S. Forest Service Funds.

²⁴ Includes \$19,683 Code 711 funds, \$353,995 Code 713 funds, & \$353,995 non-Federal contributions in kind for recreation facilities.

²⁵ Includes \$133,413 Code 711 funds, \$183,732 Code 713 funds, and \$40,001 contributed funds.

²⁶ Includes \$114,280 Special Recreation Use Fees and \$664,025 under "maintenance and operation of dams and other improvements of navigable water".

²⁷ Includes \$155,354 Code 713 funds and \$193,422 contributed funds.

²⁸ Includes \$155,354 Code 713 funds and \$193,422 contributed funds.

²⁹ Includes \$215,000 Code 711 funds, \$174,392 Code 713 funds, \$239,200 contributed funds and \$174,392 non-Federal contribution in kind for recreational facilities.

³⁰ Includes \$1,185 Code 711 funds, \$869,158 Code 713 funds, \$7,797,604 contributed funds and \$870,343 non-Federal contribution in kind for recreational facilities.

³¹ Includes \$54,460 from Productive Employment Appropriation Act (PL 98-8) of 1983.

³² Includes \$21,897 public works acceleration executive 1963 funds and \$2,594,274 Code 711 funds.

³³ Includes \$21,897 public works acceleration executive 1963 funds and \$2,594,274 Code 711 funds.

³⁴ Includes \$204,920 Special Recreation Use Fees and \$52,000 Supplement Funds, \$527,225 "maintenance and operation of dams and other improvements of navigable water".

³⁵ Includes \$20,568,369 contributed funds.

³⁶ Includes \$20,182,445 contributed funds.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

- 37 Includes \$196,306 public works acceleration executive 1963 funds and \$867,396 Code 711 funds, \$22,612 Code 713 funds, and \$22,612 contributed funds.
- 38 Includes \$236,640 Special Recreation Use Fees and \$668,025 under "maintenance and operation of dams and other improvements of navigable water".
- 39 Includes \$315,549 Code 713 funds, \$163,867 contributed funds, and \$315,549 non-Federal contribution in kind for recreation facilities.
- 40 Includes \$315,549 Code 713 funds, \$163,867 contributed funds, and \$315,549 non-Federal contribution in kind for recreation facilities.
- 41 Includes \$4,013,093 contributed funds.
- 42 Includes \$4,013,093 contributed funds.
- 43 Includes \$529,361 Code 713 funds, \$50,000 contributed funds, \$529,361 non-Federal contribution in kind for recreation facilities, and \$520,000 non-Federal cost for sewer relocation and dam.
- 44 Includes \$58,571 for preconstruction planning, engineering and design completed before FY 1953.
- 45 Includes \$57,000 contributed funds.
- 46 Includes \$45,194 contributed funds.
- 47 Includes \$3,511 "maintenance and operation of dams and other improvements of navigable water."
- 48 Includes \$5,476 "maintenance and operation of dams and other improvements of navigable water."
- 49 Includes \$8,126 "maintenance and operation of dams and other improvements of navigable water."
- 50 Includes \$8,764 "maintenance and operation of dams and other improvements of navigable water."
- 51 Includes \$418,970 contributed funds.
- 52 Includes \$312,498 contributed funds.
- 53 Includes \$964,000 contributed funds.
- 54 Includes \$638,282 contributed funds.
- 55 Includes \$1,228,000 contributed funds.
- 56 Includes \$764,307 contributed funds.
- 57 Includes \$999,135 contributed funds.
- 58 Includes \$999,135 contributed funds.
- 59 Includes \$914,090 Code 511 funds and \$3,022,910 Code 772 funds.
- 60 Includes \$555,698 Code 511 funds and \$781,789 Code 772 funds.
- 61 Includes \$573 "maintenance and operation of dams and other improvements of navigable water".
- 62 Includes \$390,875 contributed funds.
- 63 Includes \$637,000 contributed funds.
- 64 Includes \$274,077 contributed funds.
- 65 Includes \$1,678,300 contributed funds.
- 66 Includes \$805,686 contributed funds.

TABLE 24-B

LOUISVILLE, KY DISTRICT
AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
GREEN AND BARREN RIVERS, KY (See Section 3 of Text)		
Aug 11, 1888	Purchase of original improvement	H. Doc 111, 49th Cong., 2d Sess., Ann. Rept. 1887, p.1903 Annual Report, 1891, p. 2439
Mar 3, 1893 ¹	Construction of Lock 2, Green River	Annual Report, 1891, p. 2478
Jul 13, 1892	Construction of Lock 5, Green River	
Jul 13, 1902	Construction of Lock 6, Green River	
Mar 3, 1905 ²	Appropriated \$5,000 for continuing improvements of Green River above mouth of Big Barren River, with provision “That the Secretary of War may, in his discretion, expend such portion of said amount as may be necessary for removal of snags in Nolin River.”	S. Doc. 82, 83d Cong., 2d Sess. Rivers and Harbors Committee Doc. 2, 71st Cong., 1st Sess., and H. Doc. 685, 69th Cong., 2d Sess.
Mar 3, 1909	Construct new Lock 1 and new Lock and Dam 2, Green River	
Jul 3, 1930 ²	Construct new locks at Dam 5, Green River and Dam 1, Barren River; modification of Dam 5, Green River, widens bends in Bear Creek, KY	
Jun 26, 1934 ³	Operation and care of locks and dams with War Department Appropriations for rivers and harbors	H.D. 480, 72d Cong., 2d Sess. S.D. 82, 83d Congress, 2d Sess.
Aug 30, 1935 ²	Improvement of Nolin River	
Sep 3, 1954	Channel enlargement of lower 103 miles of Green River revocation of authorities for improvement of Bear Creek and Nolin River	
KENTUCKY RIVER (See Section 4 of Text)		
1879	Existing project was adopted	H. Ex, Doc 47, 45th Cong., 3d Sess., Ann. Rept. 1879, p.1398
Jun 26,1634 ³	Operation and care of locks and dams	Public Law 106-377, 106 th Congress, 1 st Session Public Law 106-553, 106 th Congress 1 st Session
Aug 26,1999	Appropriated \$2,000,000 for work on lock and dam #10	
Dec 21, 2000	Authorization to stabilize and renovate lock and dam #10	
OHIO RIVER BASIN (Louisville Dist.) (See Section 39 of Text)		
Aug 28, 1937	Construct levee, floodwalls, and drainage structures for protection of cities and towns in Ohio River Basin, projects to be selected by Chief of Engineers with approval of Secretary of War, at a cost not to exceed \$24,877,000 for construction	Flood Control Committee Document 1, 75th Congress, 1st Session
Jun 28, 1938	Approved general comprehensive plan for flood control and other purposes in Ohio River Basin as may be advisable in discretion of Secretary of War and Chief of Engineers, and for initiation and partial accomplishment of plan, authorized \$75 million for reservoirs and \$50.3 million for local protection works, individual projects to be selected and approved by Chief of Engineers, subject to provision that authorization shall include diversion of Cache River above Cairo, Illinois, and protection of area north of Cairo drainage district by levees at an estimated cost of \$2 million	Flood Control Committee Document 1, 75th Congress, 1st Session
Aug 18, 1941	Additional \$45 million for further prosecution of comprehensive plan for Ohio River Basin	H. Doc. 504, 78 th Congress, 2d Session S.D. 105, 78th Cong., 1st Sess. H.D. 535, 78th Congress 2d Session H.D. 197, 80th Congress 1st Session H.D. 198, 80th Cong., 1st Session
Dec 22, 1944	Additional \$70 million for further prosecution of comprehensive plan for Ohio River Basin, including plan of improvement for flood control and other purposes in Kentucky River Basin	
	Flood protection works at Taylorsville, KY at an estimated cost of \$129,350 Channel improvement of lower Rough River and Barnett Creek at an estimated cost of \$360,000	
Jul 24, 1946	Additional \$125 million for further prosecution of comprehensive plan, including plan of improvement for flood control in Wabash River Basin, Illinois, and Indiana, at an estimated cost of \$9,629,000 Also, West Fork of Mill Creek at an estimated cost of \$1,527,000.	

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

**TABLE 24-B
CONTINUED**

AUTHORIZING LEGISLATION

Acts	Work Authorized	Documents
May 17, 1950	Additional \$100 million for prosecution of comprehensive plan for Ohio River Basin, including necessary bank stabilization measures at New Harmony Bridge, Indiana, at an estimated cost of \$500,000.	
Jul 3, 1958	Flood control Act of 1958 modified comprehensive plan to provide for Monroe Reservoir on Salt Creek, White River Basin, Indiana, at an estimated cost to the United States of \$4,350,000; cost to local interests, \$5,141,000.	H.D. 192, 85th Congress, 1st Session
Oct 23, 1962	Flood Control Act of 1962 deleted Jessamine Creek Reservoir on Kentucky River, Kentucky, from comprehensive plan for Ohio River Basin	H.D. 423, 87th Congress, 2d Session
Dec 30, 1963	Additional \$150 million for further prosecution of comprehensive plan for Ohio River Basin	Pub. Law 88-253, 88th Cong., 1st Session
Jun 18, 1965	Additional \$89 million for further prosecution of comprehensive plan for Ohio River Basin	Public Law 89-42, 89th Cong., 1st Session
May 12, 1967	Additional \$38 million for further prosecution of comprehensive plan for Ohio River Basin	Public Law 90-17, 90th Cong., 1st Session
Aug 13, 1968	Additional \$35 million for further prosecution of comprehensive plan for Ohio River Basin	Public Law 90-483, 90th Cong., 2nd Session
Jun 19, 1970	Additional \$69 million for further prosecution of comprehensive plan for Ohio River Basin	Public Law 91-282, 91st Cong., 2nd Session
Mar 7, 1974	Additional \$120 million for further prosecution of comprehensive plan for Ohio River Basin Fifty-four local protection projects and one reservoir project in comprehensive plan for Ohio River Basin were deauthorized August 5, 1977, under Section 12, Water Resources Development Act of 1974 Two additional local protection projects in comprehensive plan for Ohio River Basin were deauthorized November 6, 1977, under Section 12, Water Resources Development Act of 1974	Public Law 93-251, 93rd Congress, 2nd Session
Nov 13, 1995	Directed use of \$1,000,000 of funds appropriated in PL 104-46 for construction of the Ohio River Flood Protection, Indiana Project.	Public Law 104-46, 104th Congress, 2nd Session

WABASH RIVER BASIN (See Section 44 of Text)

Aug 13, 1968	Construction of five multipurpose reservoirs and one local protection project in Wabash River Basin, IL & IN, with provision that construction of Big Walnut Lake, IN, project must be approved by the President. Authorization of \$50 million for initiation of partial accomplishment of project	S.D. 96, 90th Congress, 2nd Session
Dec 29, 1981	Two multiple purpose reservoirs in Wabash River were deauthorized.	Public Law 97-128, 97th Congress, 2nd Session
May 1, 1997	Two Additional reservoir projects were deauthorized	Public Law 99-662, 99th Congress, 2nd Session Public Law 100-676 100th Congress, 2nd Session

**MIAMI RIVER BASIN, PLEASANT RUN, VICINITY
FAIRFIELD, OH**

Nov 17, 1986	Three dry bed reservoirs and a channel improvement were authorized in Section 401 of the Water Resource Development Act of 1986.	Public Law 99-662, 99th Congress, 2nd Session
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HAZARD, KENTUCKY

Nov 17, 1988	Approximately 6 miles of channel improvement were authorized in Section 3 of the Water Resources Development Act of 1988.	Public Law 100-676, 100th Congress, 2nd Session
Nov 28, 1990	Flood control measures to prevent a January 1957 flood reoccurrence in the vicinity of Hazard, Kentucky at a total cost of \$30,000,000 was authorized for design and construction in Section 108 of the Water Resource Development Act of 1990.	Public Law 101-640, 101st 2nd Session

**LOUISVILLE, KY DISTRICT
AUTHORIZING LEGISLATION**

**TABLE 24-B
CONTINUED**

Acts	Work Authorized	Documents
HOLES CREEK, OHIO		
Nov 17, 1986	The project for flood control, Miami River, Little Miami River, Interim Report No2, West Carrollton - Holes Creek, Ohio: Report of the Chief of Engineers dated December 23, 1981, at a total cost of \$8,910,000, with an estimated first Federal Cost of \$6,230,000 and an estimated first non-Federal cost of \$2,680,000.	Public Law 99-662, 99th Congress, 2nd Session
Aug 17, 1999	Holds the total amount projected as the non-federal share as of September 30, 1996 in the Project Cooperation Agreement executed on that date; and 100% of the amount of any increases in the cost of the locally preferred plan over the cost estimated in the Project Cooperation Agreement.	Public Law 106-53 106th Congress, 1st Session
SALYERSVILLE, KENTUCKY		
Nov 17, 1986	Flood control measures to prevent a December 1978 flood reoccurrence in the vicinity of Salyersville, Kentucky at a total project cost of \$7,000,000 was authorized for design and construction in section 401(e)(1) of the Water Resource Development Act of 1986. With respect to the project, Congress has determined that the benefits exceed the cost of such flood control measures.	Public Law 99-662, 99th Congress, 2nd Session
Nov 5, 1990	Provided \$400,000 to construct the Salyersville, Kentucky cut-through as authorized by PL 99-662 401(e)(1) in accordance with the Special Project Report for Salyersville, Kentucky, concurred in by the Ohio River Division Engineer on or about July 26, 1989.	Public Law 101-514, 101st Congress, 2nd Session
Aug 17, 1991	Provided \$600,000 to continue construction of the Salyersville, Kentucky cut-through as authorized by PL 99-662 section 401(e)(1) in accordance with the Special Project Report for Salyersville, Kentucky, concurred in by the Ohio River Division Engineer on or about July 26, 1989.	Public Law 102-104, 102nd Congress, 1st Session
Sep 12, 1996	Additional \$3,000,000 to continue construction of the Salyersville, Kentucky cut-through.	H.D. 3816, 104th Congress, 2nd Session
FRANKFORT, SOUTH FRANKFORT, KENTUCKY		
Nov 28, 1990	Flood protection in accordance with Plan R-1 of the Louisville District Commander's Re-evaluation Report, dated June 1990 and a executed LCA no later than October 1991 was authorized in Section 102 of the Water Resources Development Act of 1990.	Public Law 101-640, 101st Congress, 2nd Session
POND CREEK, JEFFERSON COUNTY, KENTUCKY		
Sep 25, 1996	Provide \$10,993,000 to construct the Pond Creek, Jefferson County, Kentucky project for flood control in accordance with the Report of the Chief of Engineers dated June 28, 1994. The major components of the Recommended Plan include detention basin storage and channel enlargement, in addition to wetland restoration and recreation.	Public Law 104-303, 104th Congress, 2nd Session
DUCK CREEK, CINCINNATI, OHIO		
Sep 25, 1996	Provide \$11,960,000 to construct the Duck Creek, Cincinnati, Ohio flood damage reduction project in accordance with the Chief of Engineers Report dated June 24, 1994. The project consists of floodwalls/ levees and channel relocation.	Public Law 104-303, 104th Congress, 2nd Session
Jan 24, 2000	Modified to authorize the Secretary to carry out the project at a Total cost of \$36,323,000 and non-Federal share of the cost Of the project shall not exceed \$4,200,000.	Public Law 406-541, 106th Congress, 2nd Session

**REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003
AUTHORIZING LEGISLATION**

**TABLE 24-B
CONTINUED**

Acts	Work Authorized	Documents
	NEW HARMONY, INDIANA	
Sep 25, 1996	Provide \$2,100,000 for streambank erosion protection along the Wabash River at the town of New Harmony, Indiana.	Public Law 104-303, 104th Congress, 2nd Session
	WHITE RIVER, INDIANAPOLIS CENTRAL WATERFRONT, INDIANA	
Sep 12, 1996	Provide \$7,000,000 for construction of recreation facilities and rehabilitation of existing flood protection features in downtown Indianapolis along the White River.	H.D. 3816, 104th Congress, 2nd Session
Aug 17, 1999	Authorized to undertake the riverfront alterations described in the Central Indianapolis Waterfront Concept Plan, dtd Feb 1994 for the Canal Development(Upper Canal feature) and the Beveridge Paper feature, at a total cost not to exceed \$25,000,000 of which\$12,500,00 is the estimated Federal cost and \$12,500,000 is the estimated non-federal cost.	Public Law 106-553, 106th Congress, 1st Session
	BEARGRASS CREEK, KENTUCKY	
Aug 17, 1999	The project for flood control, Beargrass Creek, Kentucky: Report of the Chief of Engineers dtd May 12, 1998 at a total cost of \$11,171,300 with an estimated Federal cost of \$7,261,500 and an estimated non-federal cost of \$3,909,800.	Public Law 106-553, 106th Congress, 1st Session

¹ Deficiency act.
² Authorization for Nolin River and Bear Creek revoked by Act of Sep. 3, 1954
³ Permanent Appropriations Repeal Act.

LOUISVILLE, KY DISTRICT

TABLE 24-C

OTHER AUTHORIZED NAVIGATION PROJECTS
(See Section 6)

Name of Project	Status	For Last Full Report See Annual Report	Cost to Sep 30, 2003	
			Construction	Operation and Maintenance
Licking River	Completed	1901	\$ 13,045	\$ 139,108
Rough River, KY	Completed	1951	105,500	101,196
Tradewater River, KY	Completed	1858	18,568	33,331
White River, IN	Completed	1909	119,312	0

TABLE 24-E

OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project and Status ¹	For Last	Cost to Sep 30, 2003	
	Full Report		
	See Annual Report	Construction	Operation and Maintenance
Local Protection:			
Completed:			
Boone County, KY (Ohio River, Rabbit Hash)	1977	\$ 392,443	-
Brevoort Levee, IN (Wabash River)	1954	1,240,299	-
Brookport, IL	1958	597,493	-
Cannelton, IN	1959	2,068,391	-
Canoe Creek, Henderson, KY ²	-	1,206,852	-
Chaplin River, Perryville, KY ²	-	832,700	-
Cincinnati, OH	1957	10,150,935	-
Covington, KY	1965	7,862,937	-
Dayton, KY	1987	13,177,345	-
Delphi, IN (Wabash River)	1953	144,563	-
England Pond Levee, IL (Wabash River)	1972	734,498	-
English, IN (Little Blue River) ²	1965	372,353	-
Evansville, IN	1997	43,906,502	-
Frankfort, KY (North Frankfort) (Kentucky River) ^{3 8}	1979	2,960,970	-
Frankfort, South Frankfort, KY	1998	11,164,720	-
Gill Township Levee, IN (Wabash River)	1948	561,200	-
Golconda, IL	1960	565,333	-
Grassy Creek, Jackson County, IN (Muscatatuck River) ²	1953	70,304	-
Harrisburg, IL	1959	870,015	-
Hawesville, KY	1955	969,318	-
Indianapolis, IN (Fall Creek Section) (White River)	1953	1,788,840	-
Indian Creek, Corydon, IN ²	1964	300,143	-
Jackson, KY (Kentucky River)	1957	130,952	-
Jeffersonville-Clarksville, IN	1959 & 1996	4,836,361	-
Lawrenceburg, IN	1953	2,473,414	-
Lebanon Junction, KY (Salt River) ²	1967	130,417	-
Levee Unit No. 5, Wabash River, IN	1987	7,517,464	-
Levee Unit No. 8, White River, IN	1952	700,534	-
Louisville, KY ⁴	1975	26,721,438	-
Lyford Levee Unit, IN (Wabash River)	1944	267,391	-
Mason J. Niblack Levee, IN (Wabash River) ⁵	1987	4,337,617	-
Mill Creek, Jefferson County, KY ²	1973	292,710	-
Mount Carmel, IL (Wabash River)	1972	1,980,675	-
Muncie, IN (White River)	1956	887,835	-
Neon-Fleming, KY (Kentucky River)	1963	86,532	-
New Albany, IN	1957	5,375,471	-
New Harmony Bridge, IL & IN (Wabash River) ^{2 7}	1959	297,624	-
Newburgh, IN (Ohio River) ⁶	1974	52,061	-
Newport, KY	1959	7,512,987	-
Paducah, KY	1959	4,761,551	-
Panther Creek, KY (Green River) ²	1970	254,031	-
Portland, IN (Salamonie River) ²	1962	237,657	-
Reevesville, IL (Cache River)	1954	600,300	-
Rochester & McCleary's Bluff Levee, IL (Wabash River)	1972	1,079,236	-
Rosiclaire, IL	1954	622,544	-
Saline River & Tributaries, IL	1981	7,826,219	-
Shawneetown, IL ⁷	-	91,000	-
Sturgis, KY	1972	1,826,778	-
Taylorsville, KY (Salt River)	1952	378,050	-
Tell City, IN	1956	932,229	-
Terre Haute (Conover Levee), IN (Wabash River) ⁷	1965	14,913	-
Town Creek, Harrodsburg, KY ²	1967	56,505	-
Triplett Creek, Morehead, KY (Licking River) ²	1972	893,094	-

LOUISVILLE, KY DISTRICT

TABLE 24-E **OTHER AUTHORIZED FLOOD CONTROL PROJECTS**
CONTINUED

Project and Status ¹	For Last Full Report See Annual Report	Cost to Sep 30, 2003	
		Construction	Operation and Maintenance
Uniontown, KY	1956	1,070,926	-
Vincennes, IN (Wabash River) ⁷	1964	3,308,941	-
West Terre Haute, IN (Wabash River)	1977	1,095,704	-
Whitewater River, Hagerstown, IN ²	-	641,398	-
Active:			
Greenfield Bayou, IN (Wabash River)	-	157,935	-
Indianapolis, IN (Warfleigh Section) (White River)	1976	153,410	-
Louisville, KY ⁹	-	415,000	-
Miami River Basin, Pleasant Run, Vicinity Fairfield, OH ⁹ (Great Miami River)	-	514,964	-
West Fork Mill Creek, OH (Winton Road) ⁹	-	477,649	-
Inactive:			
Blue River, Salem, IN	-	15,000	-
Cache River, Upper Basin, Ill	-	44,000	-
Columbus, IN	-	283,000	-
Fairfield, OH	-	-	-
Hazard, KY	-	-	-
Kentucky River National Recreation Area	-	-	-
Licking River, KY	-	-	-
Mount Vernon, IN	-	30,000	-
Southwest Ohio Urban Waterfront Development	-	-	-
Vincennes, IL (Wabash River)	1964	-	-
Wabash River, York Township, Clark County, IL	-	-	-
West Fork Drakes Creek, TN & KY	-	58,000	-
Whitewater River & Tributaries, IN & OH	-	112,000	-
Reservoirs:			
Active:			
Inactive:			
Eagle Creek Lake, KY	1975	702,471	-

¹ All projects are on Ohio River unless otherwise noted.

² Authorized by the Chief of Engineers under Section 205, 1984 Flood Control Act, as amended.

³ Cost includes \$161,098 cash contribution consisting of \$105,118 from the City of Frankfort, KY and \$55,980 from the Commonwealth of Kentucky.

⁴ Cost includes \$1,716,301 cash contributions from the City of Louisville, KY.

⁵ Cost shown are for levee and pump plants.

⁶ The Water Resources Development Act of 1974 modified the Newburgh Locks & Dam project to include the bank protection works at Newburgh Locks & Dam project to include the bank protection works at Newburgh, IN.

⁷ Partially completed to form a useful unit. Remaining portions of project inactive.

⁸ Partially completed to form a useful unit. Remaining portions of project are active and inactive.

⁹ Advance Engineering and Design funded with General Investigations Appropriation.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 24-G

DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended
Flood Control - Local Protection:				
Adams Levee, IN (Wabash River)	-	1978	\$ -	-
Alton, IN	-	1977	-	-
Anderson, IN (White River)	1940	1986	5,724	-
Aurora, IN	-	1977	35,420	-
Bellevue, KY	-	1977	19,023	-
Bonpas Creek, IL (Wabash River)	-	1981	-	-
Bromley, KY	-	1977	-	-
California (Cincinnati), OH	-	1977	16,465	-
Carrollton, KY	-	1977	9,713	-
Caseyville, KY	-	1986	-	-
Cave-in-Rock, IL	-	1977	-	-
Cincinnati, OH (Unit 2)	-	1977	-	-
Cincinnati, OH (Unit 4)	-	1977	-	-
Cleves, OH	-	1977	6,343	-
Clinton, IN	-	1977	6,848	-
Cloverport, KY	-	1986	-	-
Concordia, KY	-	1986	-	-
Deer Creek, Prairie Levee, IN	-	1977	-	-
Derby, IN	-	1977	-	-
Elizabethtown, IL	-	1977	-	-
Evansville, Howell II	-	1992	-	-
Falmouth Lake	-	1998	944,386	-
Fletcher & Sunshine Gardens Levee, IN	-	1977	3,361	-
Frankfort, KY (Benson Creek) (Kentucky River)	1979	1992	-	-
Gallatin County Streambank Erosion, Area 1, Ohio River	-	2002	-	-
Grandview, IN	-	1977	8,497	-
Honey Creek Levee, IN	-	1977	-	-
Island Levee, IN (Wabash River)	-	2002	355,963	-
Leavenworth, IN	-	1977	-	-
Levee Unit 1, Eel River, IN	-	1977	-	-
Levee Unit 2, Eel River, IN	-	1977	-	-
Levee Unit 2, East Fork White River, IN	-	1977	-	-
Levee Unit 3, East Fork White River, IN	1938	1977	275	-
Levee Unit 1, IL (Wabash River)	1973	1986	60,000	-
Levee Unit 1, Little Wabash River, IL	-	1977	-	-
Levee Unit 2, Little Wabash River, IL	-	1977	-	-
Levee Unit 2, Wabash River, IL	-	1977	-	-
Levee Units 3 and 4, Wabash River, IL	1938	1977	216	-
Levee Unit 6, Wabash River, IL	-	1977	9,922	-
Levee Unit 17, Wabash River Basin, IN	-	1977	-	-
Levee Unit 1, White River, IN	-	1977	-	-
Levee Unit 7, White River, IN	-	1977	-	-
Levee Unit 9, White River, IN	-	1977	-	-
Levee Unit 10, White River, IN	-	1977	-	-
Lewisport, KY	-	1990	-	-
Louisville, KY (Partial)	-	1986	-	-
Louisville Lake	-	1998	2,355,395	-
Ludlow, KY	-	1977	14,503	-
Madison, IN	-	1977	-	-
Mauckport, IN	-	1977	-	-
Marion, IN (Wabash River)	1979	1986	209,975	-
McGinnis Levee, IN	1950	1977	71,049	-
Metropolis, IL	-	1986	10,575	-

TABLE 24-G
CONTINUED

DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended
Flood Control - Local Protection (Cont'd.)				
Milton, KY	-	1977	-	-
Moscow, OH	-	1977	-	-
New Amsterdam, IN	-	1977	-	-
New Harmony, IN	-	1977	-	-
New Richmond, OH	-	1977	7,104	-
Newport-Wilder, KY	-	1990	-	-
Orleans, IN	1972	1977	13,158	-
Owensboro, KY	-	1990	-	-
Patriot, IN	-	1977	-	-
Prestonville, KY	-	1977	-	-
Raccoon Creek Levee, IN	-	1977	-	-
Rising Sun, IN	-	1977	-	-
Rockport, IN	-	1977	-	-
Rome, IN	-	1977	-	-
Russell and Allison, IL	-	1992	52,088	-
Shawneetown, IL	-	1986	25,367	-
Shoals, IN (East Fork White River)	1938	1977	-	-
Shufflebarger Levee, IN	1950	1977	64,487	-
Smithland, KY	-	1992	-	-
Sugar Creek Levee, IN	1961	1977	28,061	-
Terre Haute, IN	-	1977	-	-
Tolu, KY	-	1986	-	-
Tri Pond Levee, IL	1972	1977	65,510	-
Troy, IN	-	1977	-	-
Utica, IN	-	1978	-	-
Vevay, IN	-	1977	-	-
Vincennes, IN (Partial)	1964	1986	-	-
Westport, KY	-	1977	-	-
Wilders, KY	-	1990	-	-
Flood Control - Reservoirs				
Big Blue Lake, IN	1980	1981	1,079,867	-
Big Pine Lake, IN (Wabash River)	1977	2002	1,270,590	-
Big Walnut Lake, IN (Wabash River)	1980	2002	1,009,188	-
Booneville Lake, KY (Kentucky River)	1976	2002	1,038,595	-
Camp Ground Lake, KY (Salt River)	1983	2002	235,615	-
Clifty Creek Lake, IN	1979	1981	1,016,358	-
Downeyville Lake, IN (Wabash River)	-	1992	-	-
Helm Lake, IL	1976	1981	41,616	-
Lafayette Lake, IN (Wabash River)	1977	2002	1,200,920	-
Lincoln Lake, IL	1979	1981	1,331,844	-
Metomora Lake, IN	-	1977	-	-
Mining City Lake, KY (Green River)	-	2002	350,747	-
Red River Lake, KY (-			
Taylorville Lake, Floyd's Fork, KY	-	2002	-	-
Navigation				
McAlpine Lock & Dam, KY & IN, Alteration of Railroad Bridge	-	2002	-	-

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 24-H

**NAVIGATION LOCKS AND DAMS
PRINCIPAL FEATURES - GREEN & BARREN RIVERS
AND KENTUCKY RIVER NAVIGATION SYSTEMS**

Lock and Dam	Miles above Mouth of River	Distance from Nearest Town	Width of Chamber	Lock Dimensions		Upper Normal Pool Elevation (feet msl)	Depth of Miter Sills		Character of Foundation	Percent Complete	Year Opened to Navigation	Cost of Lock and Dam	
				Greatest Length			Upper (feet)	Lower (feet)				Lock and	Dam
				Available For Full Width (feet)	Lift (feet)								
CONSTRUCTION OF LOCKS AND DAMS, OHIO RIVER - For report on this improvement see this heading under Ohio River.													
GREEN AND BARREN RIVERS, KY (See Section 3 of Text)													
Green River													
New	1	9.1	Spottsville, KY	84.0	600.0	11.8	349.1	12.1	11.3	Shale and Coal	100	1956 ²	\$5,101,978 ³
New	2	63.1	0.3 miles below Calhoun, KY	84.0	600.0	14.3	363.4	15.0	11.7	Shale	100	1956 ⁴	4,799,271 ⁵
	3	108.5	0.3 miles below Rochester, KY	35.8	137.5	17.0	380.4	7.3	5.6	Rock	100	1836 ⁶	121,377
	4	149.0	Woodbury, KY	35.8	138.0	16.4	396.8	7.1	6.5	Rock	100	1839 ⁷	125,718
	5	168.1	0.3 miles below Glenmore, KY	56.0	360.0	15.2	412.0 ⁸	12.0	9.3	Piles and Rock	100	1934 ⁹	1,020,868 ¹⁰
	6	181.7	2.8 miles above Brownsville, KY	36.0	145.0	9.2	421.1	8.0	8.8	Gravel	100	1905 ⁹	168,415
Barren River													
	1	15.0 ¹¹	0.3 miles above Greencastle, KY	56.0	360.0	15.2	412.0	12.0	9.3	Gravel	100	1841 ¹²	871,565 ¹³
KENTUCKY RIVER, KY (See Section 4 of Text)													
Kentucky River													
	1	4.0	3.8 miles above Carrolton, KY	38.0	145.0	8.2 ¹⁴	430.0	8.2	4.8	Rock and Clay	100	1839 ¹⁵	-
	2	31.0	Lockport, KY	38.0	145.0	13.9	443.9	7.6	6.1	Rock	100	1839 ¹⁵	-
	3	42.0	Gest, KY	38.0	145.0	13.2	457.1	8.6	6.5	Rock	100	1844 ¹⁵	1,350,385 ¹⁶
	4	65.0	1.0 mile below Frankfort, KY	38.0	145.0	13.2	470.3	6.4	6.3	Rock	100	1844 ¹⁵	-
	5	82.2	2.8 miles below Tyrone, KY	38.0	145.0	15.0	485.3	10.0	6.4	Rock	100	1844 ¹⁵ ¹⁷	-
	6	96.2	21.6 miles below High Bridge, KY	52.0	147.0	14.0	499.3	9.4	6.4	Rock and Piles	100	1894 ¹⁷	314,847
	7	117.0	0.8 mile below High Bridge, KY	52.0	147.0	15.3	514.6	9.1	6.8	Rock	100	1897 ¹⁷	290,788
	8	139.9	4.7 miles above Camp Nelson, KY	52.0	146.0	18.7	533.6	10.6	6.0	Rock	100	1900 ¹⁷	275,463
	9	157.5	Valley View, KY	52.0	148.0	17.3	550.6	10.0	6.6	Rock	100	1907 ¹⁷	237,646
	10	176.4	1.0 mile below Ford, KY	52.0	148.0	17.0	567.6	9.0	6.0	Rock	100	1907 ¹⁷	221,500
	11	201.0	17.2 miles below Irvine, KY	52.0	148.0	18.0	585.6	10.0	6.0	Rock	100	1906 ¹⁷	296,593
	12	220.0	Ravenna, KY	52.0	148.0	17.0	602.6	9.6	6.0	Rock	100	1910 ¹⁷	425,693
	13	239.9	2.2 miles below Willow, KY	52.0	148.0	18.0	620.6	9.6	6.0	Rock	100	1915 ¹⁷	461,476
	14	249.0	Heidelberg, KY	52.0	148.0	17.0	63.6	8.6	6.0	Rock	100	1971 ¹⁷	392,902

1 At normal pool Dam 48, Ohio River, Elev. 337.3, Green River datum (Elev. 338.0 Ohio River datum)

2 New Lock 1 placed in operation May 25, 1956, old Dam 1, completed 1835-40, replaced with new cellular concrete masonry dam constructed 1970-71 with O&M funds at cost of \$822,000.

3 Does not include \$179,110 cost of old Lock and Dam 1.

4 New Lock and Dam 2, placed in operation June 18, 1956.

5 Does not include \$295,696 cost of old Lock and Dam 2.

6 Operation discontinued September 30, 1981.

7 Breaching of dam on May 24, 1965, stopped through traffic to Bowling Green, KY.

8 With moveable A-frame crest 3 feet high.

9 Operation discontinued August 1, 1951.

10 Does not include \$179,434 cost of old Lock and Dam 5. Transferred to State, December 1996.

11 Distance from mouth of Green River is 164.5 miles. Lock closed to navigation as the result of loss of pool at Green River Lock and Dam 4 on May 24, 1965.

12 Piles in old gravel dam completed in 1934.

13 Includes \$729,269 for new large lock completed in 1934.

14 At normal pool McAlpine Dam, Ohio River Elev. 421.8 Kentucky River datum (Elev. 420 Ohio River datum).

15 Reconstruction completed by United States in 1882.

16 Built by State of Kentucky. Cost given is for repairs by United States to Locks and Dams 1 through 5. Original construction costs to State were: L&D 1, \$220,300; L&D 2, \$151,983; L&D 3 \$135,857; L&D 4, \$131,607; and L&D 5, \$137,436.

17 Lock was closed to traffic and placed in caretaker status in September 1982.

TABLE 24-I

**LOUISVILLE, KY DISTRICT
OHIO RIVER BASIN
TOTAL COST OF BASIN PLAN
(See Section 39 of Text)**

LOCAL PROTECTION		Estimated Cost		
Project and Status ¹	Type of Construction	Federal	Non-Federal ²	Total
Completed:				
Barnett Creek, KY (Rough River) ^{3 4}	Channel improvement	\$ 144,000	\$ 18,000	\$ 162,000
Boone County, KY	Bank Protection	392,443	83,000	475,443
Brookport, IL ^{5 6}	Wall and levee	597,493	8,500	605,993
Cannelton, IN ^{5 7}	Wall and levee	2,068,391	29,105	2,097,496
Cincinnati, OH ^{5 8}	Wall and barrier dam	10,150,935	1,309,146	11,460,081
Covington, KY ^{5 9}	Wall and levee	7,862,937	1,051,102	8,914,039
Dayton, KY	Wall and levee	13,117,345	2,013,000	15,130,345
Delphi, IN (Wabash River) ^{5 10}	Levee	144,563	17,164	161,727
England Pond Levee, IL (Wabash River) ¹¹	Levee	734,498	107,000	841,498
Evansville, IN ⁴	Wall and levee	43,906,502	5,500,000	49,406,502
Frankfort, KY, North Frankfort (Kentucky River) ⁵	Wall and levee	2,960,970	272,100	3,233,070
Frankfort, KY (Kentucky River) South Frankfort ⁵	Wall	8,373,540	2,791,180	11,164,720 ³⁶
Golconda, IL ^{5 12}	Wall and levee	565,333	10,900	576,233
Harrisburg, IL ^{5 10}	Wall and levee	870,015	20,000	890,015
Hawesville, KY ^{5 13}	Levee	969,318	42,593	1,011,911
Jackson, KY (Kentucky River) ^{5 8}	Cutoff channel	130,952	3,000	133,952
Jeffersonville-Clarksville, IN ⁷	Wall and levee	4,226,361	590,888	4,817,249
Lawrenceburg, IN ⁵	Wall and levee	2,473,689	284,725	2,758,414
Louisville, KY ^{5 14}	Wall and levee	25,005,137	1,716,301	26,721,438
Mason J. Niblack Levee, IN (Wabash River) ^{4 5}	Levee and pump plants	4,337,617	109,200	4,446,817
New Albany, IN ^{5 8}	Wall and levee	5,375,471	740,000	6,115,471
New Harmony Bridge, IL & IN (Wabash River) ^{5 7}	Bank Protection	297,624		297,624
Newport, KY ^{5 7}	Wall and levee	7,512,987	298,506	7,811,493
Paducah, KY ^{5 7}	Wall and levee	4,761,551	232,000	4,993,551
Perryville, KY, Chapin River	Channel Improvement	823,700	11,000	834,700
Reevesville, IL (Cache River) ^{5 15}	Levee	600,300	40,000	640,300
Rochester and McCleary's Bluff Levee, IL (Wabash River) ¹¹	Levee	1,079,236	100,000	1,179,236
Rough River, KY ^{3 4}	Channel improvement	654,000	5,000	659,000
Southwest Jefferson County	Wall and Levee	60,077,183	9,917,000	69,994,183
Sturgis, KY (Tradewater River) ¹¹	Levee	1,826,778	93,000	1,919,778
Taylorsville, KY (Salt River) ^{5 16}	Levee	378,050	63,309	441,359
Tell City, IN ^{5 14}	Wall and levee	932,229	32,707	964,936
Uniontown, KY	Levee	1,070,926	72,153	1,143,079
Vincennes, IN ^{5 17}				
(Wabash River)(completed portion) ⁵	Wall and levee	3,308,941	285,000	3,593,941
West Terre Haute, IN (Wabash River)	Levee	1,095,704	150,000	1,245,704
Active:				
Salyersville, KY	Channel Improvement	9,348,600	981,400	10,330,000
Inactive:				
Hazard, KY	Channel Improvement	-	-	-

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 24-I
CONTINUED

OHIO RIVER BASIN
TOTAL COST OF BASIN PLAN
(See Section 39 of Text)

LOCAL PROTECTION		Estimated Cost		
Project and Status ¹	Type of Construction	Federal	Non-Federal ²	Total
Deauthorized:				
Adams Levee, IN (Wabash River) ³²	Levee	\$ 292,000	\$ 14,000	\$ 306,000 ²⁷
Alton, IN ³⁰	Levee	255,000	40,000	295,000
Aurora, IN ³¹	Wall and levee	4,300,000	1,190,000	5,490,000
Bellevue, KY ³⁰	Wall and levee	1,570,000	400,000	1,970,000
Bonpas Creek, IL (Wabash River) ^{5 33}	Channel Improvement	1,080,000	630,000	1,710,000 ²⁸
Bromley, KY ³⁰	Wall and levee	1,250,000	925,000	2,175,000
California (Cincinnati), OH ³¹	Wall and levee	1,750,000	720,000	2,470,000
Carrollton, KY ³⁰	Wall and levee	2,220,000	97,000	2,317,000
Caseyville, KY ^{5 34}	Levee	396,000	35,000	431,000
Cave-in-Rock, IL ³⁰	Levee	661,000	125,000	786,000
Cincinnati, OH (Unit 2) ³⁰	Wall and levee	16,800,000	2,900,000	19,700,000
Cincinnati, OH (Unit 4) ³⁰	Wall	14,900,000	621,000	15,521,000
Cleves, OH ³⁰	Levee	1,240,000	67,000	1,307,000
Clinton, IN (Wabash River) ³⁰	Levee	77,000	9,000	86,000
Cloverport, KY ^{5 34}	Wall and levee	728,000	193,000	921,000
Concordia, KY ^{5 34}	Levee	590,000	55,000	645,000
Deer Creek Prairie Levee, IN (Wabash River) ³⁰	Levee	213,000	10,000	223,000 ²⁴
Derby, IN ³⁰	Wall and levee	553,000	67,000	620,000
Elizabethtown, IL ³⁰	Wall and levee	559,000	153,000	712,000
Fletcher and Sunshine Gardens Levee, IN (Wabash River) ³⁰	Levee	548,000	26,000	574,000 ²⁴
Frankfort, KY (Kentucky River) Benson Creek ⁵	Wall and Levee	3,340,000	1,150,000	4,490,000 ²²
Grandview, IN ³⁰	Levee	580,000	133,000	713,000
Greenfield Bayou Levee, IN (Wabash River) ^{5 35}	Levee	4,600,000	1,087,000	5,687,000 ²³
Honey Creek Levee, IN ³⁰	Levee	653,000	32,000	685,000
Island Levee, IN (Wabash River) ^{5 35}	Levee	4,630,000	528,000	5,158,000 ²³
Leavenworth, IN ³⁰	Wall and levee	1,470,000	266,000	1,736,000
Levee Unit 1, Eel River, IN ³⁰	Levee	204,000	40,000	244,000
Levee Unit 1, Little Wabash River, IL ³⁰	Levee	2,850,000	164,000	3,014,000 ²⁷
Levee Unit 1, White River, IN ³⁰	Levee	2,180,000	116,000	2,296,000 ²⁷
Levee Unit 17, IN ³⁰	Levee	1,580,000	118,000	1,698,000 ²⁸
Levee Unit 2, Eel River, IN ³⁰	Levee	2,090,000	715,000	2,805,000
Levee Unit 2, Little Wabash River, IL ³⁰	Levee	3,410,000	136,000	3,546,000 ²⁸
Levee Unit 2, White River, IN ³⁰	Levee	724,000	73,000	797,000 ²⁷
Levee Unit 6, Wabash River, IL ³⁰	Levee	1,160,000	56,000	1,216,000
Levee Unit 7, White River, IN ³⁰	Levee	1,490,000	88,000	1,578,000 ²⁷
Lewisport, KY ^{5 35}	Wall and levee	610,000	243,000	853,000 ²⁴
Ludlow, KY ³⁰	Wall and levee	2,540,000	745,000	3,285,000
Madison, IN ³⁰	Levee	3,820,000	360,000	4,180,000
Mauckport, IN ³⁰	Levee	506,000	105,000	611,000
McGinnis Levee, IN (Wabash River) ³⁰	Levee	1,820,000	104,000	1,924,000
Metropolis, IL ^{5 34}	Wall and levee	3,070,000	431,000	3,501,000
Milton, KY ³⁰	Wall	2,480,000	41,000	2,521,000
Moscow, OH ³⁰	Levee	1,170,000	372,000	1,542,000
New Amsterdam, IN ³⁰	Levee	476,000	13,000	489,000
New Harmony Bridge, IL & IN (Wabash River) ³⁷	Bank Protection	664,376	99,000	763,376 ²⁵
New Harmony, IN (Wabash River) ³⁰	Levee	616,000	25,000	641,000
Wilder, KY ³⁵	Wall and levee	10,800,000	959,000	11,759,000 ²⁶

¹ All projects are on an Ohio River unless otherwise noted.

² Latest cost estimate revision 1954 unless otherwise noted.

LOUISVILLE, KY DISTRICT

³ Part of Rough River Reservoir and Channel Improvement Project, KY.

⁴ Details of this project are in individual report.

⁵ Also see "Other authorized flood control projects."

⁶ See Annual Report for 1958 for details.

⁷ See Annual Report for 1959 for details.

⁸ See Annual Report for 1957 for details.

⁹ See Annual Report for 1965 for details.

¹⁰ See Annual Report for 1953 for details.

¹¹ See Annual Report for 1972 for details.

¹² See Annual Report for 1960 for details.

¹³ See Annual Report for 1955 for details.

¹⁴ See Annual Report for 1962 for details.

¹⁵ Substitute project for Belknap, Karnak, and Ullin, IL, complete. See Annual Report for 1954 for details.

¹⁶ See Annual Report for 1952 for details.

¹⁷ See Annual Report for 1956 for details.

¹⁸ Latest cost estimate revision 1988.

¹⁹ Latest cost estimate revision 1986.

²⁰ Latest cost estimate revision 1984.

²¹ Latest cost estimate revision 1983.

²² Latest cost estimate revision 1976.

²³ Latest cost estimate revision 1978.

²⁴ Latest cost estimate revision 1960.

²⁵ Latest cost estimate revision 1971.

²⁶ Latest cost estimate revision 1977.

²⁷ Latest cost estimate revision 1961.

²⁸ Latest cost estimate revision 1973.

²⁹ Latest cost estimate revision 1989.

³⁰ Deauthorized Aug 05, 1977 under Section 12, Water Resources Development Act of 1971 (P.L. 93-251).

³¹ Deauthorized Nov 06, 1977 under Section 12, Water Resources Development Act of 1974 (P.L. 93-251).

³² Deauthorized Oct 03, 1978 under Section 12, Water Resources Development Act of 1974 (P.L. 93-251).

³³ Deauthorized May 06, 1981 under Section 12, Water Resources Development Act of 1974 (P.L. 93-251).

³⁴ Deauthorized Nov 17, 1986 under Section 12, Water Resources Development Act of 1974 (P.L. 93-251).

³⁵ Deauthorized Jan 01, 1990 under Section 1001 (b)(1), Water Resources Development Act of 1986 (P.L. 99-662).

³⁷ Deauthorized Jul 19, 1992.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 24-I

OHIO RIVER BASIN

CONTINUED

TOTAL COST OF BASIN PLAN

(See Section 39 of Text)

RESERVOIRS			Estimated Cost ¹		
Tributary Basin					
Reservoirs	Status	Stream	Federal	Non-Federal	Total
Great Miami River:					
Brookville Lake, IN ²	Complete	East Fork of Whitewater River	\$ 37,905,073	\$ 7,497,492 ³	\$ 45,402,565
Metamora Lake, IN	Deauthorized	West Fork of Whitewater River	35,300,000		35,300,000 ⁴
Green River:					
Barren River Lake, KY ²	Complete	Barren River	27,371,299	108,418 ⁵	27,479,717
Green River Lake, KY ²	Complete	Green River	33,238,597	223,733 ¹³	33,462,330
Mining City Lake, KY	Deauthorized	Green River	69,100,000		69,100,000 ⁴
Nolin Lake, KY ²	Complete	Nolin River	17,193,278		17,193,278
Rough River Kentucky ²	Complete	Rough River	10,620,389	22,612	10,643,001
Kentucky River:					
Booneville Lake, KY	Deauthorized	South Fork of Kentucky River	60,700,000		60,700,000 ⁸
Buckhorn Lake, KY ²	Complete	Middle Fork of Kentucky River	11,766,206		11,766,206
Carr Fork Lake, KY ²	Complete	North Fork of Kentucky River	50,854,826		50,854,826
Eagle Creek Lake, KY	Inactive	Eagle Creek	27,800,000	-	27,800,000 ¹⁴
Red River Lake, KY	Deauthorized	Red River	38,551,692	1,794,308	40,346,000
Licking River:					
Cave Run Lake, KY ²	Complete	Licking River	81,162,282		81,162,282 ⁷
Falmouth Lake, KY	Deauthorized	Licking River	125,000,000		125,000,000 ⁸
Little Miami River:					
Caesar Creek Lake, OH ²	Complete	Caesar Creek	62,893,882	5,037,000 ⁹	67,930,882
William H. Harsha Lake, OH ²	Complete	East Fork of Little Miami River	52,023,157	3,485,840 ⁹	55,508,997
Mill Creek:					
West Fork of Mill Creek Lake, OH ²	Complete	West Fork of Mill Creek	3,622,302	1,100,161 ¹⁰	4,722,463
Wabash River:					
Cagles Mill Lake, IN ²	Complete	Mill Creek	4,256,903	113,094 ⁵	4,369,997
Cecil M. Harden Lake, IN ²	Complete	Raccoon Creek	6,633,812	353,995 ⁵	6,987,807
Monroe Lake, IN ²	Complete	Salt Creek	7,902,827	8,667,947 ¹¹	16,570,774
Patoka Lake, IN ²	Complete	Patoka River	53,095,790	20,568,369	73,664,159

¹ Latest cost estimate revision 1989 unless otherwise noted.

² Details of this project given in individual report.

³ Cash contributions for water supply storage.

⁴ Latest cost estimate revision 1954.

⁵ For Code 713 recreation development.

⁶ Latest cost estimate revision 1975.

⁷ Includes \$6,900,000 United States Forest Service cost.

⁸ Latest cost estimate revision 1979.

⁹ Reimbursement for water supply storage.

¹⁰ Includes \$520,800 for non-Federal cost for sewer relocation and dam, \$50,000 for contributed funds in fulfillment

of project authorization, and \$529,361 for Code 713 recreation development.

¹¹ Includes \$7,797,604 cash contribution for storage for low-flow regulation and \$870,343 non-Federal contribution in kind for recreational facilities.

¹² Includes \$14,180,677 cash contribution for water supply storage, and \$6,387,692 for initial recreation development.

¹³ For \$183,732 Code 713 recreation development and \$40,001 contributed funds.

¹⁴ Latest cost estimate 1974

LOUISVILLE, KY DISTRICT

TABLE 24-J

WABASH RIVER BASIN
TOTAL COST OF BASIN PLAN
(FLOOD CONTROL)
(See Section 44 of Text)

Projects	Type of Construction or Stream	Status	Estimated Cost		
			Federal	Non-Federal	Total
LOCAL PROTECTION					
Marion, IN	Wall and Levee	Inactive	\$ 3,900,000	\$ 854,000	\$ 4,754,000 ²
RESERVOIRS					
Big Blue Lake, IN	Big Blue River	Deauthorized	87,200,000	53,836,000 ³	141,036,000 ⁴
Big Walnut Lake, IN	Big Walnut Creek	Deauthorized	81,800,000	45,069,000 ⁵	126,869,000 ⁴
Downeyville Lake, IN	Flatrock and Little Flatrock Rivers	Inactive	74,200,000	64,448,000 ⁶	138,648,000 ¹
Helm Lake, IN	Skillet Fork	Deauthorized	25,171,000	14,829,000 ⁷	40,000,000 ⁸
Louisville Lake, IL	Little Wabash River	Deauthorized	113,000,000	14,435,000 ⁹	127,435,000 ¹⁰

¹ Latest cost revision 1984 unless otherwise noted.² Latest cost estimate revision 1977.³ Includes \$38,190,000 reimbursable by non-Federal interests for water supply and \$15,656,000 reimbursable for initial recreation facilities.⁴ Latest cost estimate revision 1979.⁵ Includes \$26,663,000 reimbursable by non-Federal interests for water supply and \$18,406,000 reimbursable for initial recreation facilities.⁶ Includes \$53,084,000 reimbursable by non-Federal interests for water supply, \$8,749,000 reimbursable for initial recreation facilities.⁷ Includes \$12,696,000 reimbursable by non-Federal interests for water supply and \$2,133,000 reimbursable for initial recreation facilities.⁸ Latest cost estimate revision 1975.⁹ Includes \$8,402,000 reimbursable by non-Federal interests for water supply and \$6,033,000 reimbursable for initial recreation facilities.¹⁰ Latest cost estimate revision 1982.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 24-K

**INSPECTION OF COMPLETED
FLOOD CONTROL PROJECTS
(See Section 47 of Text)**

Projects	Date of Inspection
Local Protection Projects	
Bardstown, KY	Mar 2003
Brevoort Levee, IN	Jul 2003
Brookport, IL	Sep 2003
Cache River Levee, IL	Aug 2003
Cannelton, IN	Nov 2002
Cincinnati, OH	Jun 2003
Covington, KY	Jul 2003
Dayton, KY	Jul 2003
Delphi, IN	May 2003
England Pond Levee, IL	Jul 2003
Evansville, IN	May 2003
Frankfort, KY, North Frankfort	Mar 2003
Gill Township Levee, IN	Jul 2003
Golconda, IL	Aug 2003
Harrisburg, IL	Aug 2003
Hagerstown, IN	Jun 2003
Hawesville, KY	Nov 2002
Indianapolis, IN	Jun 2003
Jeffersonville-Clarksville, IN	Jul 2003
Lawrenceburg, IN	Jul 2003
Lebanon Junction, KY	Jul 2003
Levee Unit No. 5, Wabash River, IN	Sep 2003
Levee Unit No. 8, Wabash River, IN	Jul 2003
Louisville, KY	Jun 2003
Lyford Levee, IN	May 2003
Mason J. Niblack Levee, IN	Jul 2003
Mount Carmel, IL	Jul 2003
Muncie, IN	Jun 2003
New Albany, IN	Apr 2003
Newport, KY	Jul 2003
Paducah, KY	Sep 2003
Perryville, KY	Mar 2003
Reevesville, IL	Aug 2003
Rochester-McClearys Bluff Levee, IL	Sep 2003
Rosiclare, IL	Aug 2003
Rushville, IN	Jun 2003
Shawneetown, IL	Aug 2003
Southwestern Jefferson County, KY	Jun 2003
Sturgis, KY	Aug 2003
Taylorsville, KY	Jul 2003
Tell City, IN	Nov 2002
Terre Haute (Conover Levee), IN	Nov 2003
Uniontown, KY	Aug 2003
Vincennes, IN	Sep 2003
West Terre Haute, IN	Nov 2003
Channel Improvements	
Canoe Creek, Henderson, KY	Aug 1998
Cypress Creek, McLean County, KY	Sep 1998
Eel River, Brazil Waterworks, IN	May 2003
English, IN (Little Blue River)	Jun 1994
Grassy Creek, Jackson County, IN	Sep 1995
Harrodsburg, KY (Town Creek)	Apr 2003
Indian Creek, Corydon, IN	Nov 2003
Jackson, KY (North Fork Kentucky River)	Sep 1998

TABLE 24-K
CONTINUEDINSPECTION OF COMPLETED
FLOOD CONTROL PROJECTS

(See Section 47 of Text)

Projects	Date of Inspection
Channel Improvements Con't.	
Lancassange Creek, Clark Co, IN	Apr 2003
Lick Creek, Hartford City (Blackford County), IN	Oct 2002
Mill Creek, Jefferson County, KY	Apr 2003
Muscatatuck River, Crothersville, IN	Oct 2002
Neon-Fleming, KY (North Fork Kentucky River)	Nov 2002
Nicholasville (Town Fork) Vicinity, KY	Apr 2003
Panther Creek, Curdsville, KY	Sep 1998
Plum Creek, Spencer County, KY	Apr 2003
Portland, IN (Salamonie River)	Oct 2002
Rough River, Hartford, Ohio County, KY	Nov 1999
Salamonie River, Wells County, IN	Oct 2002
Saline River and Tributaries, IL	Jun 1998
Tripplett Creek, Morehead, KY	Nov 2002
Troublesome Creek, Hindman, KY	Sep 1998
Wabash River, Adams County, IN	Nov 1999
Whitesburg, KY (North Fork Kentucky River)	Aug 1998
Bank Revetments	
Crooked Creek, City Garage, Madison, IN	Oct 1999
Crooked Creek, John Paul Park, Madison, IN	Oct 1999
Eagle Creek, Indianapolis, IN	Jun 2003
East Fork White River, Brownstown, (Jackson County), IN	Mar 2003
Eighteen Mile Island, Oldham County, KY	Jun 1993
Great Miami River, Sidney, OH	Aug 1995
Green River, Calhoun, KY (River Mile 63.6)	Sep 1995
Green River, Calhoun, KY (River Mile 63.4)	Sep 1998
Indian Creek, Burton Lane, Morgan County, IN	Oct 1999
Licking River, Butler, KY	Aug 1995
Lusk Creek, Golconda, IL	Jul 2002
Little Miami River, Indian Hill, OH	Nov 1999
Little Miami River, Milford, OH	Apr 1995
Nameless Creek, Warren County, IN	Jun 1995
North Fork, Kentucky River, Whitesburg, KY	Oct 2002
Great Miami River, Ice Jam Flooding, Port Jefferson, OH	Nov 1999
Ohio River, Brandenburg, KY	Apr 2003
Ohio River, Carrolton, KY	Feb 2003
Ohio River, Cloverport, KY	Nov 2002
Ohio River, Daviess County, KY	Sep 1998
Ohio River, Fort Massac State Park, IL	Nov 1999
Ohio River, Hawesville, KY	Sep 1998
Ohio River, Lewisport, KY	Nov 2002
Ohio River, Madison, IN	Oct 1999
Ohio River, Moscow, OH	Jan 2000
Ohio River, Mount Vernon, IN	May 1995
Ohio River, Newburgh, IN	Aug 1998
Ohio River, Ohio Street, Evansville, IN	Nov 1999
Ohio River, Otter Creek Park, KY	Jun 1993
Ohio River, Owensboro, KY	Sep 1998
Ohio River, Owensboro Riverport Authority, KY	Feb 1995
Ohio River, Rabbit Hash, Boone County, KY	Nov 1999
Ohio River, Rockport/Rockport Landing, IN	Aug 1998
Ohio River, Sellersburg, IN	Nov 2002
Ohio River, SR 66, Cannelton, IN	Nov 2002
Ohio River, Troy, IN	Nov 2002

TABLE 24-K
CONTINUEDINSPECTION OF COMPLETED
FLOOD CONTROL PROJECTS
(See Section 47 of Text)

Projects	Date of Inspection
Bank Revetments Con't	
Ohio River, Upper River Road, Jefferson County, KY	Jul 1991
Ohio River, Vanderburg County, IN	Aug 1998
Patoka River, Jasper, IN	Oct 1993
Patoka River, Winslow, IN	Jul 1995
South Fork of Wildcat Creek, County Road 7 East, Tippecanoe County, IN	Apr 1995
Stoner Creek, North Middletown, KY	Jul 1994
Wabash River, near Merom, IN	Jun 1995
Wabash River, New Harmony, IN	Aug 1998
Wabash River, Terre Haute STP Outfall	Oct 1999
Wabash River, Vigo County, County Road 83 West	Oct 1999
Wabash River, Vigo County, Little Road	Oct 1999
White River, Morgan County, Blue Bluff Road, IN	Oct 1999
White River, Petersburg (Pike County), IN	Jul 1995
Whitewater River, Levee Road, near Brookville, IN	Apr 1995
Wastewater Treatment Plant, Great Miami River, Ross, OH	Apr 1995

LOUISVILLE, KY DISTRICT

TABLE 24-L

**FLOOD CONTROL WORK
UNDER SPECIAL AUTHORIZATION
(See Section 49 of Text)**

	Fiscal Year Cost		
	Federal	Non-Fed	Total
Environmental Restoration (Section 1135)			
Barren, KY RA ⁶	95	-	95
Cane Ridge, IN RA ¹	51,348	-	51,348
Coordination Accounting Fund ⁸	16,175	-	16,175
Green River Headwater ⁴	2,035	-	2,035
Hovey Lake Wildlife Area, IN ¹	6,121	-	6,121
Monroe Lake, IN RA ¹	17,032	-	17,032
Mt. Etna/Mt. Hope Wetlands Salamonie Lake, IN ¹	2,976	-	2,976
Preliminary Restoration Plan ⁷	992	-	992
White River Muncie, IN ¹	13,030	-	13,030
Flood Control (Section 205)			
Amberley Creek, Cincinnati, OH ²	33,058	37,635	70,693
Banklick Creek, Kenton County, KY ²	103,303	-	103,303
Canoe Creek, Henderson, KY ¹	5,103	-	5,103
City Dam, Brevoort Levee, IN ⁵	12,843	-12,843	0
College Corner, OH ²	38,830	-	38,830
Coordination Account ⁸	20,687	-	20,687
Cow Creek & McPherran Branch, IN ²	65,399	-	65,399
Deshee River, Brevoort Levee, IN ⁵	-1,989	1,989	0
Duck Creek, Elwood, IN ⁶		24	24
Dugan Run, Urbana, OH ²	32,457	-	32,457
Elizabethtown, KY ²	23,580	-	23,580
Feather Creek, Clinton, IN ³	10,306	-	10,306
Flatrock River, Rushville, IN ⁵	-87	-	-87
Hinkston Creek Mt. Sterling, KY ²	29,545	-	29,545
Knox County Kelso Creek, IN ²	42,191	-	42,191
Lamotte Creek, Palestine, IL ²	80,821	-	80,821
Licking River Flood Warning System, KY ⁴	249,014	267,475	516,489
Little Duck Creek, OH ²	16,027	-	16,027
Mississinewa River, Marion, IN ²	71,258	-	71,258
North Fork, Kentucky River, Jackson, KY ⁵	43,292	10,223	53,515
North Fork Kentucky River Whitesburg, KY ⁶	16,236	-	16,236
North Panther Creek, Daviess County, KY ²	22,241	-	22,241
Owl Creek, West Carrollton, OH ²	49,846	-	49,846
Pankey Branch, Harrisburg, IL ²	68,368	-	68,368
Pleasant Creek, Greenwood, IN ²	40,784	9,032	49,816
Rolling Fork River, Lebanon Junction, KY ⁴	961,748	339,573	1,301,320
Salt Lick, KY ⁶	39,869	-	39,869
White River, Anderson, IN ³	87,589	487	88,076
Whitewater River, Connersville, IN ⁶	14,082	-	14,082
Emergency Bank Protection (Section 14)			
Big Vermillion River, Eugene Covered Br., IN ⁶	4,065	-	4,065
Blue Lick, KY ¹	60,322	-	60,322
Cincinnati Water Works, OH ⁶	14,151	-	14,151
Clear Creek Mapletown Utilities, IN ¹	17,276	-	17,276
Coordination Account ⁸	20,307	-	20,307
Copeland Low Water Bridge, Breathitt Co., KY ⁶	14,835	-	14,835
Crooked Creek, Madison, IN ¹	15,571	-	15,571
Green River Muhlenburg County, Park, KY ⁶	12,890	-	12,890
Hodgenville, KY ¹	4,610	-	4,610
Little Miami River Anderson Township, OH ¹	36,153	-	36,153
Mill Creek Rd 55 OW, Park Co., OH ¹	246	-	246
North Fork Kentucky River, Vocational School, KY ⁵	-85	-	-85
Ohio River, Perry County, IN ⁵	18,872	5,351	24,223
Rockport, IN ¹	872	-	872

TABLE 24-L
CONTINUEDFLOOD CONTROL WORK5
UNDER SPECIAL AUTHORIZATION
(See Section 49 of Text)

	Fiscal Year Cost		
	Federal	Non-Fed	Total
Rough River, Hartford, KY ¹	10,035	-	10,035
Southern Ditch, Louisville, KY ¹	6,213	-	6,213
Water Wells, Sellersburg, IN ⁶	14,722	-	14,722
White River, Knox County, Hwy 358, KY ¹	21,642	-	21,642
Snagging & Clearing (Section 208)			
Jackson County, IN ⁶	283	-	283
Madisonville, KY ⁶	183	-	183
Aquatic Ecosystem Restoration (Section 206)			
Banta Tibbs Landfill RA ⁶	111	-	111
Beargrass Creek Louisville, KY Wetlands ¹	71,689	-	71,689
Bloomington IN Wetlands RA ¹	7,777	-	7,777
Chapman Lake, IN Wetlands RA ¹	36,641	-	36,641
Coordination Account Fund ⁸	19,127	-	19,127
East Fork White River RA ¹	33,042	-	33,042
Freeman Lake Wildlife Refuge ⁷	19,000	-	19,000
Goose Pond, Miami Oxbow ⁷	155	-	155
Kenton County, Sewer District No. 1 ⁷	13,448	-	13,448
Lake Maxinkuckee, Culver, IN ⁶	139	-	139
Lexington Road Park Greenway ⁷	12,238	-	12,238
Log Creek Church Rd, Pike Co, IN ²	11,427	-	11,427
Lost River Valley, Bowling Green ¹	12,177	-	12,177
Lower Beargrass Creek ⁷	3,973	-	3,973
Ohio River Garvin Brown ¹	11,581	-	11,581
Pitcher Lake Oxbow Restoration ⁷	1,000	-	1,000
Troy, OH Wetlands RA ⁶	80	-	80
Yellowbank WMA KY RA ¹	54,811	-	54,811

¹ Planning and Design Analysis (PDA).² Feasibility Report.³ Plans and Specifications.⁴ Construction Funds Received or Construction Underway.⁵ Construction Completed.⁶ Study Terminated.⁷ Preliminary Restoration Plan.⁸ Coordination Account.

LOUISVILLE, KY DISTRICT

TABLE 24-M

GENERAL INVESTIGATIONS

(See Sections 50, 51, 52, & 53 of Text)

Projects	Federal	Fiscal Year Cost Non-Fed	Total
SURVEYS			
Navigation Studies			
Ohio River Mainstem, Uniontown, KY, IL, IN	\$ 354,625	-	354,625
Flood Damage Prevention Studies			
Butler Co., OH	2	-	2
Licking River Watershed, Cynthiana, KY	32,079	75,023	107,102
Metro Louisville, Mill Creek, KY	33,314	-	33,314
Mississinewa River, Marion, IL	36	-	36
North Fork Licking River, KY	904	-	904
Ohio River & Trib Recon St. (Metro Louisville S.W.)	83,950	112,137	196,086
Polk Run Creek, OH	26,978	-	36,978
Williamstown Lake, KY	29,881	-	29,881
Special Studies			
Columbus Waterfront Development, IN	13,055	-	13,055
Covington Waterfront Development, KY	111,197	-	111,197
Metropolitan Louisville, Jefferson Co., KY	24,090	-	24,090
Ohio River Madison, OH	2,311	-	2,311
Ohio Riverfront Study, Cincinnati, OH	32,359	-	32,359
Vicennes Waterfront Development, IN	25,015	-	25,015
White River Central Waterfront, IN	29,735	-	29,735
Review of Authorized Projects			
Green River L&D #6	24,264	-	24,264
Miscellaneous Activities			
Federal Energy Regulatory Commission	7,870	-	7,870
Intra-Agency Water Resources Development	21,094	-	21,094
N. American Waterfowl Management Plan	2,105	-	2,105
Special Investigation, KY	117,577	-	117,577
PRECONSTRUCTION ENGINEERING AND DESIGN			
Navigation Project - Lock and Dams			
John T. Myers Locks and Dam	888,364	-	888,364
Flood Control Projects - Local Protection			
Paducah, KY	693	-	693
Wabash River, New Harmony, IN	12	-	12
COORDINATION WITH OTHER AGENCIES			
Coordination with other Agencies and Non-Federal Interest			
Coop w/other Water Agencies	7,994	-	7,994
Planning Assistance to States			
PAS-IN-Indianapolis Three Dam Study	88	7,121	7,209
PAS-OH- Colerain Twp H&H IS	52	5,409	5,461
PAS Negotiation Funds	15,036	-	15,036
PAS-KY-Jefferson County	1,935	-	1,935
PAS-KY-Union County	58,461	58,551	117,012
PAS-OH-City of Middleton	13,648	-	13,648

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

TABLE 24-M
CONTINUEDGENERAL INVESTIGATIONS
(See Sections 50, 51, 52, & 53 of Text)

Projects	Fiscal Year Cost		
	Federal	Non-Fed	Total
COLLECTION AND STUDY OF BASIC DATA			
Flood Plain Management Services			
Flood Plain Management Services	57,646	-	57,646
Quick Responses	5,983	-	5,983
SS-Johnson County Kansas	759	-	759
SS-Fall Creek, Indianapolis	47,158	-	47,158
SS-Hazard ND FPI	36	-	36
Technical Service, General	22,695	-	22,695
Hydrologic Studies			
Hydrologic Studies	4,740	-	4,740

HUNTINGTON, WV DISTRICT

All cost and financial statements for projects are listed at the end of this chapter. All other tables are referenced in the text and also appear at the end of this chapter.

The Huntington District includes central and south-eastern Ohio, all of West Virginia except the northern panhandle and northeastern portion, the

eastern portion of Kentucky, a portion of midwestern Virginia, a very small portion of northwestern North Carolina, embraced in the drainage basin of the Ohio River and its tributaries from approximate river mile 127 (below Pittsburgh, PA) to approximate river mile 438, immediately upstream from Foster, KY. The drainage area of the Huntington District is approximately 44,914 square miles.

Improvements

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NAVIGATION

1. CONSTRUCTION OF LOCKS AND DAMS ON THE OHIO RIVER

See this heading under Chapter 19 – Ohio River.

2. KANAWHA RIVER, WV

Location. The Kanawha River is approximately 97 miles in length and is formed by the junction of the New and Gauley Rivers, a short distance above Kanawha Falls, WV, and flows generally northwesterly to the confluence with the Ohio River at Point Pleasant, WV.

Previous projects. For details of previous projects see the Annual Reports for 1875, 1915 and 1938.

Existing project. The existing project consists of three navigation structures on the Kanawha River. London Locks and Dam are located approximately 83 miles above the mouth of the Kanawha River and approximately two miles downstream from Montgomery, WV. Marmet Locks and Dam are located approximately 68 miles above the mouth of the Kanawha River at Marmet, WV. Winfield Locks and Dam are located approximately 31 miles above the mouth of the Kanawha River at Winfield, WV. Each structure has twin locks with usable dimensions of 56 feet by 360 feet. Another structure, Robert C. Byrd Locks and Dam, is located on the Ohio River at approximate river mile 279 and approximately nine miles below Gallipolis, OH. This structure has two parallel locks, the main lock is 110 feet by 1,200 feet. The existing project was completed at a cost of \$27,853,699. Construction was initiated in 1931 and completed in 1937. This system of locks and dams provides a navigable depth of nine feet from the mouth of the Kanawha River to a point approximately 91 miles upstream. For further cost details see Table 17-B, see also, Appendix C. Public Law 99-88 authorized the initiation of Engineering and Design and Real Estate Acquisition for Winfield Locks and Dam Replacement. Feasibility studies for modernization have been completed. The plan includes construction of an additional lock chamber (800'x110') adjacent to the existing locks and continued use of the riverward lock chamber and the navigation dam. The contract for Lock Replacement – Phase I was awarded in April 1990 and is complete. The contract for Construction of Additional Lock and Gate Bay, Phase IIA, was awarded in May 1993 and

is complete. The contract for lock replacement, Phase IIB, was awarded in January 1994 and is complete. The full funding estimate for new work is \$235,900,000, which is 50 percent Federal cost and 50 percent Inland Water Ways Trust Fund cost. Public Law 104-303 authorized construction of a new lock chamber at Marmet Locks and Dam. The plan includes construction of a new lock chamber (800'x110') on the right descending bank landward of the existing locks and the continued use of the current twin 360'x56' chambers and the navigation dam. Feasibility studies for modernization are complete. Pre-construction engineering and design work is complete. Real estate acquisition activities, begun in FY 1998, are continuing. The contract for lock replacement was awarded in May 2002 and is 25% complete. The full funding estimate for new work is \$333,000,000, which is 50% Federal cost and 50% Inland Waterways Trust Fund cost. Major rehabilitation work has been initiated at London Locks and Dam. The plan for rehabilitation includes lengthening the river lock chamber by moving existing upper miter gates and reinstalling them upstream at the emergency dam sill, but within the confines of existing lock walls, and replacing the upper guard wall. The contract for Phase 2C, major rehabilitation at London, was awarded in January 2002 and is 99% complete. The full funding estimate for major rehabilitation is \$22,900,000, which is 50% Federal cost and 50% Inland Waterways Trust Fund cost.

In addition to the navigation structures on the Kanawha River, the Corps of Engineers participated with the City of Charleston in construction of a riverfront park on the right descending bank near downtown Charleston. The total cost of the project was \$8,755,242. The federal share was \$4,370,121 and the non-federal share was \$4,385,121. The additional \$15,000 in the non-federal share was for betterments paid for by the City of Charleston. The project was completed in January 1999.

Local cooperation. All requirements for local cooperation have been completed.

Terminal facilities. There are 100 terminals along the Kanawha River located from the mouth of the river to 30 miles east of Charleston, WV. These terminals are constructed principally of steel and wood mooring piles and steel pile mooring cells. Eighteen of these terminals have railroad connections. Five terminals are paved wharves and one is owned by the City of Charleston, WV. The remaining terminals are privately owned. The principal commodities handled are coal, chemicals,

HUNTINGTON, WV DISTRICT

acids, cement, gasoline and oil, and sand and gravel. For further details see the 1962 Annual Report.

Operations during the fiscal year. The Locks and Dams were operated as required and necessary repairs and improvements were made to the locks and dams as well as to the appurtenant structures and grounds. Channel inspections were conducted periodically. In FY 2003 dredging by contract on the Kanawha River totaled 38,689 cubic yards at \$284,994.

3. OPEN CHANNEL WORK, OHIO RIVER

See this heading under Chapter 19 – Ohio River.

4. OTHER AUTHORIZED NAVIGATION PROJECTS

See Table 25-C.

Article I. FLOOD CONTROL

5. ALUM CREEK LAKE, OH

Location. The damsite is located in Delaware County, OH, on Alum Creek, a tributary of Big Walnut Creek, approximately 26 miles above the mouth of Alum Creek and 15 miles north of Columbus, OH, and approximately 157 miles above the mouth of the Scioto River.

Existing project. The existing project consists of a rolled earthfill dam 93 feet in height and 10,000 feet in length with a gate controlled spillway located in the right abutment. The reservoir provides a total storage of 134,800 acre-feet and controls a drainage area of approximately 123 square miles. See also Appendix A. Construction of the dam and appurtenant works was initiated in August 1970 and completed in July 1974. The 405 tracts of land required for the project have been acquired. The Federal cost of the project was \$56,267,422. The Sponsor will reimburse the Government an estimated \$27,880,000, exclusive of interest, for cost allocated to water supply.

Local cooperation. For details of required local cooperation see the 1981 Annual Report.

Operations during the fiscal year. The entire project is complete. The project was operated for the benefit of flood control as required, and necessary

repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be \$2,883,000. To date, the project has prevented an estimated \$82,614,000 in flood damages.

6. BEECH FORK LAKE, WV

Location. The damsite is located in Wayne County, WV, on Beech Fork Creek, a tributary of Twelvepole Creek, approximately four miles above the mouth of Beech Fork Creek and 20 miles above the confluence of Twelvepole Creek and the Ohio River.

Existing project. The existing project consists of a rolled earth-fill dam 86 feet in height and 1,080 feet in length, an uncontrolled spillway landward of the left abutment of the dam with a control structure at the upstream end. The reservoir provides a total storage of 37,540 acre-feet and controls a drainage area of approximately 78 square miles. Construction of the dam was initiated in December 1972 and completed in February 1977. See also Appendix A. A total of 485 tracts of land were acquired for the project. The total cost of the project was \$41,987,500.

Local cooperation. None required.

Operations during the fiscal year. The entire project is complete. The project was operated for flood control as required and necessary repairs were made to the structure and appurtenances. To date the project has prevented an estimated \$17,559,000 in flood damages.

7. BLUESTONE LAKE, WV

Location. The damsite is located on the New River in Summers County, WV, approximately three miles above Hinton, WV, and one mile from the confluence of the New and Greenbrier Rivers. The reservoir is located in Summers County, WV, and Giles County, VA.

Existing project. The existing project consists of a concrete gravity dam 180 feet in height and 2,048 feet in length. Appurtenant structures consist of a gated spillway 790 feet in length located in the channel section of the dam. The stilling pool is formed by a 23-foot-high weir located 364 feet downstream of 16 gated sluices through the spillway section and discharging into the stilling pool. Penstocks were installed at the time of construction

to permit the future installation of hydropower. The reservoir provides for a total storage of 631,000 acre-feet. See also Appendix A. Construction of the dam was initiated in January 1942 and completed in April 1952. A total of 338 tracts of land were acquired for the project. The Federal cost of the project was \$29,458,652, which includes expenditures under the recreation at completed projects program. For further details see the 1939 and 1962 Annual Reports.

In FY 2000 Dam Safety Assurance activities were initiated at Bluestone Dam. Modifications include increasing the height of the dam 13 feet; installing 309 anchors and thrust blocks; constructing gate closures across State Route 20; modifying penstocks to supplement discharge capacity; and relocating electrical lines. The Phase 1 contract, consisting of construction of a temporary access bridge, modification to existing penstocks, and construction of concrete thrust block; and design of Phase 2 of project, was awarded in September 2000, and is 97% complete. The full funding estimate for this work is \$118,000,000 (full Federal expense).

Public Law 106-53, Section 361, directed the Corps to implement a plan for debris management at Bluestone Lake. In April 2001, a contract to construct a multi-level release tower and tunnel was awarded and is 91% complete. The full funding estimate for this work is \$15,120,200.

Local cooperation. None required.

Operations during the fiscal year. The entire project is complete. The reservoir was operated for flood control as required and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be \$298,398,000. To date, the project has prevented an estimated \$1,893,841,000 in flood damages.

8. BURNSVILLE LAKE, WV

Location. The damsite is located in Braxton County, WV, on the Little Kanawha River, approximately two miles above Burnsville, WV, and 124 miles above the confluence of the Little Kanawha River and the Ohio River.

Existing project. The existing project consists of an earth embankment dam 80 feet in height and 1,000 feet in length with a gated spillway in the left abutment. The outlet works is an integral part of the spillway, consisting of five sluice gates and one low flow sluice. The reservoir provides for a total storage

of 65,400 acre-feet and controls a drainage area of approximately 165 square miles. Construction of the dam was initiated in June 1973 and completed in February 1976. See also Appendix A. The 357 tracts of land required for the project have been acquired. The Federal cost of the project to date has been \$57,166,839.

Local cooperation. None required.

Operations during the fiscal year. The project is completed. The project was operated for flood control as required and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be \$13,658,000. To date, the project has prevented an estimated \$111,748,000 in flood damages.

9. CENTRAL WEST VIRGINIA ENVIRONMENTAL INFRASTRUCTURE

Location: The project area consists of 20 counties in Central West Virginia and includes portions of Huntington, Pittsburgh, and Baltimore Districts. The program purpose is to provide design and construction assistance for environmental infrastructure and resource protection and development, including projects for wastewater treatment, water supply, and surface water resource protection and development. Only those projects which are publicly owned may participate in the program.

Existing project: In 2003 there were two projects underway in Huntington District: North Putman County and Silverton PSD. Work is authorized by Sec 571 of the Water Resources Development Act of 1999 (PL 106-53).

Local Cooperation: All requirements of local cooperation have been met.

Operating during the fiscal year: During the year, \$52,400 was expended in Huntington District in the various activities related to this program.

10. DEER CREEK LAKE, OH

Location. The damsite is located in Pickaway County, approximately seven miles south of Mount Sterling, OH, on Deer Creek, a tributary of the Scioto River, approximately 21 miles above the mouth of Deer Creek and approximately 106 miles above the mouth of the Scioto River.

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Existing project. The existing project consists of a rolled earth-filled dam 93 feet in height and 3,880 feet in length, a 741-foot concrete gravity channel section controlled by three tainter gates, an outlet works consisting of five gated sluices through a concrete spillway section discharging into a stilling basin and an earth dike 15 feet by 4,600 feet in a saddle located approximately four miles southwest of the damsite. The reservoir provides a total storage of 102,540 acre-feet and controls a drainage area of approximately 278 square miles. Construction of the dam was completed in May 1968. The 138 tracts of land required for the project have been acquired. For further project details see the 1965 Annual Report. See also Appendix A. The Federal cost of the project is \$20,406,545, including expenditures under the recreation at completed projects program.

Local cooperation. For details of required local cooperation see the 1981 Annual Report.

Operations during the fiscal year. The entire project is complete. The reservoir was operated for flood control as required and necessary repairs were made to the structure and appurtenances. The project prevented an estimated \$322,000 in flood damages during the fiscal year. To date, the project has prevented an estimated \$34,155,000 in flood damages.

11. DELAWARE LAKE, OH

Location. The damsite is located on the Olentangy River, approximately six miles above and north of Delaware, OH, and approximately 32 miles above the confluence of the Olentangy and Scioto Rivers at Columbus, OH. The reservoir is located in Delaware, Marion and Morrow Counties, OH.

Existing project. The existing project consists of a rolled earth-fill dam with a gate controlled ogee type spillway and five outlet conduits in the channel. The dam is 18,600 feet in length and 92 feet in height. The project provides for storage of 132,800 acre-feet and controls a drainage area of approximately 381 square miles. Construction of the dam was initiated in April 1946 and completed in July 1948. For further details see the 1962 Annual Report. See also Appendix A. Total real estate requirements of 7,703 acres of fee acquisition and 2,428 acres of flowage easements have been completed. The Federal cost for the project was \$7,631,821.

Local cooperation. None required.

Operations during the fiscal year. All construction work is complete. The reservoir was operated for the benefit of flood control as required, and necessary repairs were made to the structure and appurtenances. The project prevented an estimated \$1,021,000 in flood damages during the fiscal year. To date, the project has prevented an estimated \$91,878,000 in flood damages.

12. DEWEY LAKE, KY

Location. The damsite is located on Johns Creek, approximately seven miles southeast of Paintsville, KY, and approximately six miles above the confluence of Johns Creek and the Levisa Fork of the Big Sandy River.

Existing project. The existing project consists of an earthfill dam 118 feet in height and 913 feet in length, a controlled outlet works discharging through a channel excavated in the left abutment, and a rolled earth-fill dike blocking a low divide to Brandykeg Creek and the Levisa Fork. The reservoir provides a total storage of 93,300 acre-feet and controls a drainage area of approximately 207 square miles. Construction of the dam was initiated in March 1946 and completed in July 1949. For further project detail see the 1965 Annual Report. See also Appendix A. Total real estate requirements for the project were 12,458 acres in fee and 1,170 acres in flowage easements. The Federal cost of the project was \$7,845,547, including expenditures for recreation under the completed project program.

Dam Safety Assurance activities are underway at Dewey Dam. Modifications include raising the height of the main dike with compacted earth, construction of a parapet wall across the dam, addition a 125-foot auxiliary spillway, and restricting the existing spillway to its original design capacity by providing vertical restriction walls on each side. A construction contract was awarded in May 2000 and is 100% complete. Dam safety assurance activities at Dewey Dam are about 99% complete. The full funding estimate for this work is \$18,600,000 (full Federal expense).

Local cooperation. None required.

Operations during the fiscal year. All construction activities are complete. The reservoir was operated for the benefit of flood control as required and necessary repairs were made to the structure and appurtenances. The project prevented an estimated \$15,622,000 in flood damages during

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the fiscal year. To date, the project has prevented an estimated \$77,787,000 in flood damages.

13. DILLON LAKE, OH

Location. The damsite is located on the Licking River, approximately six miles above the confluence of the Licking and Muskingum Rivers at Zanesville, Ohio.

Existing project. The existing project consists of a rolled earth-fill dam 118 feet in height and 1,400 feet in length, a controlled outlet works discharging through a 20-foot conduit in the right abutment, and an ungated 280-foot spillway adjacent to the left abutment of the dam, and two rolled earthfill dikes. The reservoir provides for a total storage of 261,110 acre-feet and controls a drainage area of approximately 748 square miles. Construction of the dam was completed in July 1959. For further project details see the 1962 Annual Report. See also Appendix A. Total real estate required for the project consists of 8,232 acres in fee and 5,380 acres of flowage easements. See also Appendix A. Federal cost of the project was \$30,218,135.

Local cooperation. None required.

Operations during the fiscal year. All construction work is complete. The project was operated as required for flood control, and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be \$410,000. To date, the project has prevented an estimated \$298,054,000 in flood damages.

14. EAST LYNN LAKE, WV

Location. The damsite is located in Wayne County, WV, approximately six miles southeast of Wayne, WV, 10 miles above the mouth of East Fork and 42 miles above the confluence of Twelvepole Creek and the Ohio River.

Existing project. The existing project consists of an earth-fill dam 113 feet in height and 638 feet in length, an uncontrolled spillway near the left abutment of the dam, and a 13-foot reinforced concrete tunnel in the right abutment with a control structure at the upstream end. The reservoir provides for a total storage of 82,500 acre-feet and controls a drainage area of approximately 133 square miles. The required 552 tracts of land have been acquired.

See also Appendix A. The Federal cost of the project was \$85,872,963.

Local cooperation. None required.

Operations during the fiscal year. All construction work is complete. The project was operated for flood control as required and necessary repairs were made to the structure and appurtenances. During the fiscal year, the project prevented flood damages estimated to be \$10,378,000. To date, the project has prevented an estimated \$74,408,000 in flood damages.

15. FISHTRAP LAKE, KY

Location. The damsite is located in Pike County, KY, on the Levisa Fork of the Big Sandy River, approximately 15 miles upstream from Pikeville, KY, approximately three miles above the confluence of Levisa and Russell Forks and 103 miles above the mouth of the Levisa Fork.

Existing project. The existing project consists of a rock-fill dam 195 feet in height and 1,100 feet in length, a controlled spillway containing four tainter gates located in the valley wall adjacent to the left abutment of the dam, the outlet works consists of an intake structure with three conduits controlled by slide gates and discharging into a horseshoe shaped tunnel. The reservoir provides for a total storage of 164,360 acre-feet and controls a drainage area of approximately 395 square miles. The dam was completed in February 1969. The 1,301 tracts of land required for the project have been acquired. See also Appendix A. The Federal costs for the project was \$54,754,126, which includes expenditures under the recreation at completed projects program.

Local cooperation. None required.

Operations during the fiscal year. All construction work is complete. The project was operated for flood control as required, and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be \$150,346,000. To date, the project has prevented an estimated \$445,720,000 in flood damages.

16. GRAYSON LAKE, KY

Location. The damsite is located in Carter County, KY, on the Little Sandy River approximately

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49 miles above the confluence with the Ohio River, and 11 miles upstream from Grayson, KY.

Existing project. The existing project consists of a random earthfill dam 120 feet in height and 1,460 feet in length, a controlled outlet works discharging through a 14-foot spillway beyond the left abutment. The reservoir provides for a total storage of 119,000 acre-feet and controls a drainage area of approximately 196 square miles. The dam was completed in January 1968. The 484 tracts of land required for the project have been acquired. See also Appendix A. Federal costs for the project was \$19,162,741, which includes expenditures for recreation facilities under the completed projects program.

Local cooperation. None required.

Operations during the fiscal year. All construction work is complete. The reservoir was operated for flood control as required and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be \$5,417,000. To date, the project has prevented an estimated \$87,462,000 in flood damages.

17. JOHN W. FLANNAGAN DAM AND RESERVOIR, VA

Location. The damsite is located in Dickenson County, VA, approximately four miles northwest of Haysi, VA, on the Pound River approximately two miles above the confluence of the Pound River and Russell Fork and approximately 150 miles above the mouth of the Big Sandy River.

Existing project. The existing project consists of a rock-fill dam 252 feet in height and 970 feet in length, an outlet tunnel located near the left abutment of the dam with a control structure at the upstream end, a spillway controlled by six tainter gates located in a saddle just upstream from the damsite. The reservoir provides for a total storage of 145,700 acre-feet and controls a drainage area of approximately 222 square miles. The project was modified to include water quality control by adding control gates to the previously uncontrolled spillway, which increased the total storage capacity by 39,000 acre-feet. The dam was completed in December 1963. The 382 tracts of land required for the project have been acquired. See also Appendix A. The Federal cost for the project was \$20,444,383, which includes

expenditures for recreation under the completed projects program.

Local cooperation. None required.

Operations during the fiscal year. All construction work is complete. The project was operated for flood control as required and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be \$82,879,000. To date, the project has prevented an estimated \$242,844,000 in flood damages.

18. LEVISA AND TUG FORKS OF THE BIG SANDY AND CUMBERLAND RIVERS, WV, VA, AND KY

Location. The Levisa and Tug Forks form the Big Sandy River at Louisa, KY. The Cumberland portion is the Upper Cumberland River Basin above Cumberland Falls, KY. The basin is approximately 100 miles in length and averages approximately 30 miles in width in the lower portion and approximately 10 miles in width above Harlan, KY. The Big Sandy Basin is within the Huntington District, and the Cumberland Basin is within the Nashville District. This report covers that portion of the project located in the Huntington District.

Existing project. The authorization language (Section 202 of PL 96-367, 1981) directs the Corps of Engineers to design and construct, at full Federal expense, such flood control measures as are determined to be necessary and advisable for the communities in the Tug and Levisa Forks and Upper Cumberland River basins. The authorization further states that such flood control measures would be located at or in the vicinity of Pikeville, KY, and Grundy, VA, on the Levisa Fork; Pineville, KY, on the Cumberland River; and Williamson and Matewan on the Tug Fork, in order to afford the named communities and other flood damaged locations and their immediate environs a level of protection against flooding at least sufficient to prevent any future losses from the likelihood of flooding such as occurred in April 1977. Subsequent legislation (WRDA 1986), required that non-Federal interests cost share construction at no less than 5%. The full funding estimate for the project is \$2,056,272,000, which includes \$112,540,000 non-federal contributions.

Local cooperation. All requirements of local cooperation have been met.

Operations during the fiscal year. Engineering studies are underway to determine what is necessary and advisable to address the flooding problems in both the Levisa Fork Basin and in the Tug Fork tributary stream areas.

Structural measures have been completed at West Williamson and Williamson, WV; South Williamson, KY; Matewan, WV; and Kermit, WV. Flood warning systems have been completed for the Levisa Basin and Tug Basin.

Non-structural measures are complete at Williamson, WV; Matewan, WV; and South Williamson, KY.

Non-structural measures are underway at Hatfield Bottom, Lower Mingo County, Upper Mingo County, Wayne County and McDowell County in WV; at Pike County, Martin County, and the Town of Martin in KY; in the Levisa Basin, VA and KY; and at Grundy, VA. At Grundy, two contracts are underway: Redevelopment Site, awarded April 2001 is 75% complete; and Access Bridge, awarded in September 2003.

Operations during the fiscal year. To date, flood damages prevented in the area include: South Williamson, KY: \$1,826,000; and Williamson LPP, WV: \$3,801,000.

19. MASSILLON, OH

Location. The project is located in Stark County, on the Tuscarawas River, approximately 200 miles above the mouth of the Muskingum River.

Existing project. The existing project consists of channel improvement to the Tuscarawas River, combined with the construction of drainage facilities, levees and pump stations. For further details see the 1962 Annual Report. Construction was initiated in July 1940 and completed in October 1951.

Local cooperation. None required. See the 1962 Annual Report for details of local contribution of work beyond the scope of the project. To date, the system has prevented an estimated \$5,711,000 in flood damages.

Operations during the fiscal year. Routine inspections were conducted to determine that the improved channel was maintained in satisfactory condition.

20. MUSKINGUM RIVER LAKES, OH

Location. The Muskingum River lies in Southeast Ohio and including tributaries, drains approximately 8,000 square miles. The headwaters rise about 25 miles south of Lake Erie and flow into the Ohio River at Marietta, OH, 172 miles below Pittsburgh, PA.

Existing project. The existing project consists of the construction and operations and maintenance of 14 reservoirs and appurtenant works in the Muskingum River Basin. The existing project originally authorized by the Public Works Administration in February 1934. Construction of the system was initiated in January 1935 and completed in November 1938. The system was initially operated and maintained by the Muskingum Watershed Conservancy District of Ohio, the sponsoring agency, from July 1938 to August 1939 when operation and maintenance became the responsibility of the Corps of Engineers in accordance with the provisions of the 1939 Flood Control Act. For further project details, see the 1962 Annual Report. See also Appendix A. The cost of the project was \$41,247,815, which includes expenditures for recreation facilities under the completed project program.

A significant Major Rehabilitation program was approved in December 1977 in order to assure the integrity of the existing 14 structures under the originally designed maximum pool conditions. Underseepage and abutment seepage problems are being corrected through the installation of downstream blankets, toe drains and/or relief wells and grouting.

A related but separate program entitled Dam Safety Assurance has been initiated. Under current hydrologic design standards, deficiencies exist in the spillways at the 14 projects in the system. Corrective measures include widening present spillways, constructing new spillways and installing parapet walls on top of the dams have been completed at 7 projects. Seven remaining projects with deficiencies need corrective measures. New seismic criteria will require all dams to be evaluated for seismic deficiencies. If deficiencies are found, corrective measures will be required. Dam Safety Assurance activities are 100% complete at Beach City Lake. Modifications involved upgrading spillway adequacy including raising the dam and dike, constructing a parapet wall, raising roadways, and modifying a railroad stoplog closure. The full funding estimate for this work is \$34,590,000, which includes \$8,000,000 from the non-Federal sponsor, the

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Muskingum Watershed Conservancy District. Work was begun at Magnolia Levee, which protects the town of Magnolia during flood events, and is a part of the Bolivar Dam area. Magnolia Levee experiences a seepage problem during high water and is in danger of failure.

Local cooperation. All requirements for local cooperation have been met. For further details see the 1942 Annual Report.

Operations during the fiscal year. The reservoirs were operated for flood control as required, and the necessary repairs were made to the structures and appurtenances. The system prevented an estimated \$29,815,000 in flood damages during the fiscal year. To date, the system has prevented an estimated \$2,236,776,000 in flood damages.

21. NEWARK, OH

Location. The project is located in Licking County at the junction of the North and South Forks of the Licking River, approximately 29 miles above the confluence with the Muskingum River at Zanesville, OH.

Existing project. For details of the existing project see the 1981 Annual Report. Construction of the existing project was initiated in July 1940 and completed in November 1941. As a result of the 1968 Flood Control Act the existing project was modified to include improvement of the interior drainage facilities, construction of Log Pond Run diversion channel and modification of the North Fork Channel. Construction of the Log Pond Run diversion channel was awarded in September 1980 and completed in December 1981. The total cost of the project is \$11,151,232.

Local cooperation. For details of required and completed local cooperation see the 1981 Annual Report.

Operations during the fiscal year. Routine inspections were conducted to determine that the improved channel was maintained in satisfactory condition. To date, the project has prevented an estimated \$3,299,000 in flood damages.

22. NORTH BRANCH OF KOKOSING RIVER LAKE, OH

Location. The damsite is located in Knox County, OH, on the North Branch of Kokosing River,

approximately nine miles above the confluence of the Kokosing and North Branch Rivers, and two miles northwest of Fredericktown, OH.

Existing project. The existing project consists of a rolled-earth dam, 70 feet in height and 1,400 feet in length with an uncontrolled spillway adjacent to the right abutment, and an uncontrolled, reinforced concrete outlet work located in the right abutment of the dam. The reservoir provides for a total storage of 14,885 acre-feet and controls a drainage area of approximately 45 square miles. The 56 tracts of land required for the project have been acquired. Construction of the dam was completed in May 1972. See also Appendix A. The Federal cost for the project was \$6,665,985, which includes expenditures under the recreation at completed projects program.

Local cooperation. None required.

Operations during the fiscal year. All construction work is complete. The reservoir was operated for flood control as required and the necessary repairs were made to the structure and appurtenances.

23. NORTH FORK OF POUND RIVER LAKE, VA

Location. The damsite is located in Wise County, VA, on the North Fork of Pound River, approximately one mile upstream from the confluence of the North and South Forks which form the Pound River and approximately three miles upstream from Pound, VA.

Existing project. The existing project consists of a rockfill dam, 130 feet in height and 600 feet in length, an uncontrolled spillway in a saddle upstream from the dam, and an outlet tunnel in the right abutment with a control structure at the upstream end. The reservoir provides a total storage of 11,300 acre-feet and controls a drainage area of approximately 17 square miles. The 127 tracts of land required for the project have been acquired. Construction of the dam was completed in January 1966. See also Appendix A. The Federal cost for the project was \$6,186,901, which includes expenditures for recreation under the completed projects program.

Local cooperation. None required.

Operations during the fiscal year. All construction is complete. The project was operated as required for flood control and the necessary repairs

were made to the structure and appurtenances. During the fiscal year the project prevented an estimated \$6,914,000 in flood damages. To date, the project has prevented an estimated \$12,854,000 in flood damages.

24. OHIO ENVIRONMENTAL PROGRAM

Location: The program provides environmental infrastructure assistance to communities throughout the State of Ohio and includes portions of Huntington, Louisville, Pittsburgh, and Buffalo Districts. This includes project design and construction assistance for wastewater treatment and related facilities, combined sewer overflows, water supply and storage and related facilities, mine drainage, environmental restoration, and surface water resource protection and development. Reimbursable projects are allowed.

Existing project: Within Huntington District there are 2 projects underway in Ohio: Wellston and Adelphi. Work is authorized by Sec 594 of the Water Resources Development Act of 1999 (PL 106-53).

Local cooperation: Reimbursable construction PCAs, 75% federal and 25% non-federal, were executed with the appropriate local sponsors.

Operating during the fiscal year: During the year, \$166,700 was expended in Huntington District in the various activities related to this program.

25. OHIO RIVER BASIN (HUNTINGTON DISTRICT)

Location. The work covered by this project consists of a series of levees, floodwalls, channel improvements and dams and lakes in the Ohio River Basin within the Huntington District.

Existing project. The existing project consists of the individual projects considered in the Ohio River Basin comprehensive plan within the Huntington District.

Operations during the fiscal year. The completed local protection projects, which are operated and maintained by local interests, except for those local protection projects for which individual reports have been included. During the fiscal year, the project prevented an estimated \$11,617,000 in flood damages. To date the project has prevented flood damages of an estimated cumulative total of \$937,788,000.

26. PAINT CREEK LAKE, OH

Location. The damsite is located in Ross County, OH, on Paint Creek, a tributary of the Scioto River, approximately 37 miles above the mouth of Paint Creek and 100 miles above the mouth of the Scioto River and approximately four miles east of New Parkersburg, OH.

Existing project. The existing project consists of a rock and random earth fill dam, 118 feet in height and 700 feet in length, a gate controlled spillway located near the right abutment, an outlet tunnel located in the right abutment with a control structure at the upstream end, and a random rockfill dike located at the right abutment of the spillway. The reservoir provides for a total storage of 145,000 acre-feet and controls a drainage area of approximately 576 square miles. Construction of the dam was completed in July 1973. The 257 tracts of land required for the project have been acquired. See also Appendix A. Federal cost for the project was \$26,969,962, which includes expenditures under the recreation at completed projects program.

Local cooperation. For details of required local cooperation see the 1981 Annual Report.

Operations during the fiscal year. All construction work is complete. The reservoir was operated for flood control as required and the necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented an estimated \$614,000 in flood damages. To date, the project has prevented flood damages estimated to be \$80,651,000.

27. PAINTSVILLE LAKE, KY

Location. The damsite is located in Johnson County, KY, on Paint Creek, a tributary of the Levisa Fork of the Big Sandy River, approximately eight miles above the mouth of Paint Creek, and four miles west of Paintsville, KY.

Existing project. The existing project consists of a rockfill dam 153 feet in height and 1,560 feet in length, an uncontrolled spillway located southwest of the right abutment of the dam, and an outlet tunnel in the right abutment with a control structure at the upstream end. The reservoir provides for a total storage of 76,642 acre-feet and controls a drainage area of approximately 93 square miles. The 635 tracts of land required for the project have been acquired. Construction of the dam was initiated in

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September 1976 and was completed in September 1980. See also Appendix A. The total cost of the project to date has been \$60,194,986. The local sponsor has reimbursed the Government \$377,000 for the cost sharing portion of recreation development.

Operations during the fiscal year. The reservoir was operated for flood control as required and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be \$7,694,000. To date, the project has prevented flood damages estimated to be \$15,501,000.

28. R. D. BAILEY LAKE, WV

Existing project. The damsite is located in Wyoming County, WV, on the Guyandotte River approximately 108 miles above the confluence with the Ohio River and one mile east of Justice, WV.

Existing project. The existing project consists of a rolled rockfill dam with a concrete face, 305 feet in height and 1,330 feet in length, an uncontrolled spillway located in a saddle in the right abutment of the dam, and an outlet tunnel in the left abutment with a control structure located at the upstream end. The reservoir provides for a total storage of 203,700 acre-feet and controls a drainage area of approximately 540 square miles. Construction of the dam was initiated in November 1973 and completed in December 1979. See also Appendix A. A total of 2,109 tracts of land were acquired for the project. The total cost of the project to date has been \$261,251,678.

Local cooperation. None required.

Operations during the fiscal year. The reservoir was operated for flood control as required and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be \$16,539,000. To date, the project has prevented flood damages estimated to be \$147,828,000.

29. ROSEVILLE, OH

Location. The project is located in Muskingum and Perry Counties, on Moxahala Creek, approximately six miles from the confluence with Jonathan Creek, a tributary of the Muskingum River.

Existing project. The existing project consists of 7,291 feet of channel improvement; 6,400 feet of

levee and railroad embankment enlargements; and the necessary appurtenances for interior drainage. Total Federal cost of the project was \$910,785. Construction was initiated in August 1959 and completed in October 1960.

Local cooperation. All requirements for local cooperation have been completed. See also the 1962 Annual Report. Total costs of local requirements were \$62,000.

Operations during the fiscal year. Routine inspections of the improved portion of the project were conducted to determine that the project was maintained in satisfactory condition. During the fiscal year the project prevented flood damages estimated to be \$15,000. To date, the project has prevented an estimated \$1,287,000 in flood damages.

30. SOUTHERN AND EASTERN KENTUCKY ENVIRONMENTAL INFRASTRUCTURE

Location: The project area consists of a 27 county region in southern and eastern Kentucky, which includes portions of the Huntington, Nashville, and Louisville Districts. The program provides for design and construction assistance of environmental infrastructure projects. The focus of the program is on wastewater treatment and collection systems. Reimbursable projects are allowed.

Existing project: Within Huntington District, nine projects were underway in 2003 in eastern Kentucky. These were South Williamson, David, Manchester, Rolling Acres, Fleming-Neon, Martin County-Warfield, Henry Clay Area, Booneville, and Pikeville. Work is authorized by Sec 531 of the Water Resources Development Act of 1996 (PL 104-303); as amended by Sec 532 of Water Resources Development Act of 1999.

Local cooperation: Reimbursable construction PCAs, 75% federal and 25% non-federal, were executed with the appropriate local sponsors.

Operating during the fiscal year: During the year, \$868,900 was expended in Huntington District in the various activities related to this program.

31. SOUTHERN WEST VIRGINIA ENVIRONMENTAL INFRASTRUCTURE

Location. The project area consists of 16 counties in southern West Virginia (all within Huntington District). The program provides for design and construction assistance of environmental infrastructure, largely water supply and wastewater treatment facilities, in that region.

Existing project. In 2003, four projects were underway in the program: Krouts Creek, Boone County, Kilsyth and Cool Ridge/Flat Top. Work is authorized under Section 340 of the Water Resources Development Act of 1992 (PL 102-580).

Local Cooperation. All requirements of local cooperation have been met.

Operating during the fiscal year: During the year, \$253,500 was expended in this program.

32. SUMMERSVILLE LAKE, WV

Location. The damsite is located at Ruckers Bend in Nicholas County on the Gauley River approximately 35 miles above the confluence of the Gauley and New River at Gauley Bridge, WV.

Existing project. The existing project consists of a rockfill dam having a height of 357 feet and a length of 2,280 feet, an outlet tunnel in the right abutment with a control structure located at the upstream end, an uncontrolled spillway located west of the right abutment and two earthfill dikes. The reservoir provides for a total storage of 413,800 acre-feet and controls a drainage area of 803 square miles. See also Appendix A. Construction of the dam was initiated in March 1960 and completed in March 1966. A total of 9,346 acres of land were acquired for the project. The Federal cost of the project was \$48,375,884, which includes expenditures under the recreation at completed projects program.

Local cooperation. None required.

Operations during the fiscal year. All construction work is complete. The project was operated for flood control as required and necessary repairs were made to the structures and appurtenances. During the fiscal year the project prevented flood damages estimated to be \$61,150,000. To date, the project has prevented an estimated \$468,541,000 in flood damages.

33. SUTTON LAKE, WV

Location. The damsite is located on the Elk River in Braxton County approximately one mile above Sutton, WV, and 101 miles above the mouth of the Elk River.

Existing project. The existing project consists of a concrete gravity dam having a height of 220 feet and a length of 1,178 feet, a gated spillway in the channel section of the dam, comprised of six tainter gates supported by piers, an outlet works comprised of five gate sluices through the spillway section. The reservoir provides for storage of 265,300 acre-feet and controls a drainage area of 537 square miles. See also Appendix A. Construction of the dam was initiated in 1949 and completed in June 1960. The total cost of the project was \$37,029,585.

Local cooperation. None required. See the 1981 Annual Report for contributed funds.

Operations during the fiscal year. All construction work is complete. The project was operated for flood control as required and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be \$344,000. To date, the project has prevented an estimated \$261,883,000 in flood damages.

34. TOM JENKINS DAM, OH

Location. The damsite is located in Athens County, on the East Branch of Sunday Creek, a tributary of the Hocking River, approximately three miles north of Glouster, OH, and 57 miles above the mouth of the Hocking River.

Existing project. The existing project consists of a rolled-earth dam, 84 feet in height and 944 feet in length, a controlled works discharging through a tunnel in the left abutment, and an uncontrolled spillway in the ridge running south from the damsite. The reservoir, known as Burr Oak Lake, provides for a total storage of 26,900 acre-feet and controls a drainage area of approximately 33 square miles. See also Appendix A. Construction of the project was initiated in March 1948 and completed in February 1950. A total of 100 acres of land were acquired for the project. The Federal costs of the project were \$2,086,503, which includes expenditure for recreation at completed project.

HUNTINGTON, WV DISTRICT

Local cooperation. All requirements of local cooperation have been met. See also the 1962 Annual Report. Contributed funds in the amount of \$575,000 have been received from the State of Ohio.

Operations during the fiscal year. All construction work is complete. The project was operated for flood control as required and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be \$375,000. To date, the project has prevented an estimated \$22,559,000 in flood damages.

35. WEST COLUMBUS, OH

Location. The project is located on the right bank of the Scioto River in the western part of the City of Columbus, OH, across the river from the downtown area in Franklin County. It is generally bounded by the Scioto River on the north, Interstate 71 on the east, and Frank Road on the south. The area being protected, approximately 2,800 acres, is completely urban with a mix of residential, industrial and commercial development.

Existing project. The project under construction consists of a 7.2-mile system including levee, floodwall and high ground. It protects 6,170 structures and 2,800 acres of lands. Fourteen gate closures, interior drainage facilities and construction of two new pump stations and reworking two existing pump stations are included.

Local cooperation. Local interests are required to provide all lands, easements, and rights-of-way; to verify or relocate buildings; utilities, roads, bridges (except railroad bridges), and other facilities where necessary. Pay a cash contribution of at least 5%, as required by the Water Resources Development Act of 1986, of the costs allocated to flood control, and bear all costs of operation, maintenance, and replacement of flood control facilities.

Operations during the fiscal year. Funds to initiate preconstruction engineering and design were appropriated in Fiscal Year 1989 and funds to initiate construction were appropriated in Fiscal Year 1993. The total estimated cost of the project is \$129,400,000 of which \$32,400,000 is non-Federal. Construction contracts underway in 2003 include:

Phase IIIC, awarded Nov 2000, 98% complete.

Phase IIIB, awarded Mar 2001, 98.6% complete.

Reliable Power, awarded Dec 2001, 49.3% complete.

Phase IIE, awarded Jan 2003, 100% complete.
Scioto Main Sanitary Sewer, awarded May 2003, 74.8% complete.

36. YATESVILLE LAKE, KY

Location. The damsite is located in Lawrence County, on Blaine Creek, a tributary of the Big Sandy River, approximately five miles west of Louisa, KY, and 18 miles above the mouth of Blaine Creek.

Existing project. The existing project consists of an earth and rockfill dam, 104 feet in height and 760 feet in length, an uncontrolled spillway located one-half mile southeast of the right abutment of the dam. The outlet works consists of a 13-foot diameter tunnel through the left dam abutment. The reservoir provides for a total storage of 86,951 acre-feet and controls a drainage area of approximately 208 square miles. The 778 tracts of land required for the project have been acquired. Construction was completed in May 1995. See also Appendix A. The total cost of the project to date has been \$99,453,537.

Operations during the fiscal year. The reservoir was operated for flood control as required and necessary repairs were made to the structure and appurtenances. During the fiscal year the project prevented flood damages estimated to be \$47,000. To date the project has prevented an estimated \$17,616,000 in flood damages.

37. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

The Flood Control Act of June 22, 1936, and subsequent acts require local interest to furnish assurances that they will operate and maintain certain local protection projects after completion in accordance with regulations prescribed by the Secretary of the Army. District Engineers are responsible for the administration of these regulations within their respective districts. Maintenance inspections were made during the fiscal year of those completed units transferred to local interests for operation and maintenance. Local interests were advised, as necessary, of measures required to maintain the projects in accordance with the standards prescribed by regulations. Total costs for fiscal year 2003 were \$163,978. Total cost to September 30, 2003 were \$2,268,714. The flood control works inspected and the dates of inspection are tabulated in Table H.

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38. FLOOD CONTROL WORK UNDER SPECIAL AUTHORIZATION

Emergency bank protection activities pursuant to Section 14 of the 1946 Flood Control Act (PL 79-526), are tabulated as follows:

Location	FY 2003 Cost
Sec 14, Coordination Account.....	\$23,923
Paden City, WV.....	438
River Ave., So Charleston, WV.....	3,376
Spruce Street, St. Albans, WV.....	296
Kanawha, RM 56, Charleston, WV.....	630
East/West Interceptor Sewer, Huntington, WV.....	335
Minersville, OH.....	77,115
Tuscarawas Co, Johnson Co. Road, OH.....	13,953

Flood control activities pursuant to Section 205 of the 1948 Flood Control Act (PL 80-852), are tabulated as follows:

Location	FY 2003 Cost
Sec 205, Coordination Account.....	\$11,657
Brush Ck, Gladly Fork, Princeton, WV.....	29,944
Mercer County, WV.....	58,851
Blacksburg, VA.....	17,215
Hoods Creek, KY.....	12,319
Magazine Branch, Elk River, WV.....	3,126

No activities pursuant to Section 208 of the 1954 Flood Control Act (PL 83-780) were underway in FY 2003.

Activities pursuant to Section 107 of the 1960 River and Harbor Act (PL 86-645) for small navigation projects are tabulated as follows:

Location	FY 2003 Cost
Greenup Slackwater Harbor, KY.....	\$24,293

Activities pursuant to Section 1135 of WRDA 1986 (PL 99-662) for Project Modifications to Improve the Environment are tabulated as follows:

Location	FY 2003 Cost
Sec 1135, Coordination Account.....	\$ 9,717
Piedmont Lake Reclamation Project, OH.....	12,169
Wills Creek, Linton Road Mine, OH.....	111,448
Wills Creek, Mason Mine 280, OH.....	105,104

Activities pursuant to Section 206 of WRDA 1996 (PL 104-303) for Aquatic Ecosystem Restoration are tabulated as follows:

Location	FY 2003 Cost
Sec 206, Coordination Account.....	\$10,819
Ore Knob, NC.....	162,960
Watauga, NC.....	138,744
Huff Run, OH.....	3,641
Big Darby Creek, OH.....	98,450
Lancaster, OH.....	7,360
Three Creeks Environmental Restoration, OH.....	41,594
St. Louisville, OH.....	129,113
Hocking R. Wetlands, Lancaster, OH.....	3,701
5 th Avenue Dam Removal, Columbus, OH.....	6,118

Work performed under special legislation pursuant to Water Resources Development Act of 1996 (PL 104-303) as follows:

Location	FY 2003 Cost
Greenbrier River, Marlinton, WV.....	\$1,088,220
Lower Mud River, Milton, WV.....	494,501

Flood control and coastal emergency activities pursuant to PL 84-99 were conducted as required during FY 2003 at a cost of \$317,809.

National emergency management activities were accomplished by the district as required. The costs for these activities during FY 2003 were \$20,718.

GENERAL INVESTIGATIONS

39. SURVEYS

Fiscal year 2003 costs were \$4,436,068 itemized as follows:

Location	FY 2003 Cost
Navigation Studies.....	\$1,316,576
Flood Damage Prevention Studies.....	494,152
Special Studies.....	352,486
Comprehensive Basin Studies.....	0
Review of Authorized Projects.....	0
Miscellaneous Activities.....	214,201
Coordination with Other Agencies.....	83,621
Collection and Study of Basic Data.....	74,224
Preconstruction Engineering and Design (Projects not Fully Authorized).....	1,339,572
Preconstruction Engineering and Design (Projects Fully Authorized).....	561,235

HUNTINGTON, WV DISTRICT

Table 25-A Cost and Financial Statement

See Section In Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost to Sep. 30, 2003	
2	Kanawha River, WV (existing project)	New Work						
		Approp					27,853,699	¹
		Cost					27,853,699	¹
		Maint						
		Approp	7,184,996	6,487,816	7,678,843	10,195,697	203,251,801	²
		Cost	7,141,925	6,433,269	7,479,955	10,051,433	202,780,853	²
		Rehab						
		Approp					130,984	³
		Cost					130,984	³
2	Elk River Harbor, WV	Maint						
		Approp	-1,367	304,510	-5,096	272,118	2,992,655	
		Cost	0	299,414	-5,096	272,118	2,987,359	
2	Charleston Riverfront Park, WV	New Work						
		Approp	0	0	0	0	4,370,121	
		Cost	0	0	0	0	4,370,121	
2	Winfield L&D	New Work						
		Approp	2,880,000	42,000	394,000	39,656	227,777,656	⁴
		Cost	2,946,031	247,614	290,037	224,075	227,771,621	⁵
2	Marmet L&D	New Work	10,909,000	13,948,000	28,788,000	38,588,972	104,286,972	⁶
		Approp	11,577,252	13,710,285	28,789,324	38,748,329	104,178,024	⁷
		Cost						
2	London L&D	New Work	1,326,000	1,270,000	8,810,000	12,085,488	23,491,488	⁸
		Approp	1,118,822	1,305,006	8,849,284	12,112,141	23,385,253	⁹
		Cost						
5	Alum Creek Lake, Oh	New Work						
		Approp					56,267,422	
		Cost					56,267,422	
		Maint						
		Approp	674,535	969,519	696,311	685,354	15,595,759	¹⁰
		Cost	677,513	780,461	884,845	687,747	15,595,491	¹⁰
6	Beech Fork Lake	New Work						
		Approp					41,987,500	
		Cost					41,987,500	
		Maint						
		Approp	1,301,099	1,149,417	1,000,536	980,376	20,710,501	
		Cost	1,294,647	1,143,991	1,014,609	988,024	20,708,844	

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

Table 25-A (Cont'd)

Cost and Financial Statement

See Section In Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost To Sep. 30, 2003	
7	Bluestone Lake	New Work						
		Approp					29,458,652	¹¹
		Cost					29,458,652	¹¹
		Maint						
		Approp	1,621,800	4,115,643	5,466,866	4,567,079	50,446,503	¹²
		Cost	1,778,295	3,913,298	5,646,306	4,157,506	49,992,175	¹²
		Dam Safety						
		Approp	3,349,000	7,904,000	9,982,000	10,047,090	31,282,090	
		Cost	2,590,849	7,735,109	9,861,138	11,081,555	31,268,651	
8	Burnsville Lake	New Work						
		Approp					57,166,839	
		Cost					57,166,839	
		Maint						
		Approp	1,492,133	1,819,970	1,608,956	1,688,582	30,291,631	¹³
		Cost	1,493,198	1,808,463	1,623,061	1,699,721	30,288,349	¹³
9	Central WV Environmental Infrastructure	New Work						
		Approp	0	122,000	111,000	-33,000	200,000	
		Cost	0	83,414	64,044	52,449	199,907	
10	Deer Creek Lake	New Work						
		Approp					20,406,545	¹⁴
		Cost					20,406,545	¹⁴
		Maint						
		Approp	690,797	672,483	653,099	851,838	16,469,528	¹⁵
		Cost	687,425	667,429	654,823	773,812	16,394,370	¹⁵
11	Delaware Lake	New Work						
		Approp					7,631,821	
		Cost					7,631,821	
		Maint						
		Approp	809,872	870,970	727,235	770,970	21,503,983	¹⁶
		Cost	808,930	862,363	739,284	737,593	21,464,348	¹⁶
12	Dewey Lake	New Work						
		Approp					7,845,547	¹⁷
		Cost					7,845,547	¹⁷
		Maint						
		Approp	1,373,286	1,330,685	1,394,082	1,523,950	34,276,597	¹⁸
		Cost	1,352,736	1,342,517	1,273,566	1,662,674	34,285,513	¹⁸
		Dam Safety						
		Approp	1,171,744	8,888,000	4,890,109	988,152	19,582,320	
		Cost	1,228,998	8,836,123	5,188,052	960,720	19,538,400	
13	Dillon Lake	New Work						
		Approp					30,218,135	¹⁹
		Cost					30,218,135	¹⁹
		Maint						
		Approp	783,493	723,150	545,655	655,467	15,617,952	²⁰
		Cost	777,386	698,624	553,370	687,785	15,617,952	²⁰

HUNTINGTON, WV DISTRICT

Table 25-A (Cont'd)

Cost and Financial Statement

See Section In Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost To Sep. 30, 2003	
14	East Lynn Lake	New Work						
		Approp					85,872,963	
		Cost					85,872,963	
		Maint						
		Approp	1,665,901	1,847,637	1,787,486	1,681,320	33,852,273	²¹
		Cost	1,653,492	1,812,927	1,783,136	1,735,236	33,852,131	²¹
15	Fishtrap Lake	New Work						
		Approp					54,754,126	²²
		Cost					54,754,126	²²
		Maint						
		Approp	1,647,314	1,754,255	1,841,837	1,788,177	30,053,139	²³
		Cost	1,651,328	1,746,772	1,787,542	1,864,741	30,134,807	²³
16	Grayson Lake	New Work						
		Approp					19,162,741	²⁴
		Cost					19,162,741	²⁴
		Maint						
		Approp	1,006,828	1,223,795	1,265,122	1,068,466	23,420,944	
		Cost	1,002,220	1,228,744	1,265,914	1,076,592	23,430,148	
17	J. W. Flannagan	New Work						
		Approp					20,444,383	²⁵
		Cost					20,444,383	²⁵
		Maint						
		Approp	1,333,463	1,310,385	1,308,547	1,218,260	30,320,728	²⁶
		Cost	1,339,592	1,268,970	1,318,435	1,248,863	30,313,497	²⁶
18	Levisa and Tug Forks	New Work						
		Approp	11,773,000	18,161,859	32,427,000	34,356,600	485,932,246	²⁷
		Cost	18,804,408	16,954,129	31,763,448	28,639,694	470,266,481	²⁷
19	Massillon, Ohio	New Work						
		Approp					8,139,406	²⁸
		Cost					8,139,406	²⁸
		Maint						
		Approp	1,351	19,320	13,695	15,152	406,710	
		Cost	1,351	19,288	13,726	15,152	406,709	
20	Muskingum River Dams and Lakes	New Work						
		Approp					41,247,815	²⁹
		Cost					41,247,815	²⁹
		Maint						
		Approp	6,291,901	7,357,638	6,562,745	6,809,465	154,681,316	³⁰
		Cost	6,198,899	7,224,978	6,785,467	6,825,770	153,744,482	³⁰
		Maint						
		(Rehab)						
		Approp					982,300	
		Cost					982,300	
		Rehab						
		Approp					22,172,945	³¹
		Cost					22,172,945	³¹

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

Table 25-A (Cont'd)

Cost and Financial Statement

See Section In Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost To Sep. 30, 2003	
20	Muskingum River Dams and Lakes (cont'd)	Dam Safety						
		Approp	1,776,000	822,000	296,391	9,905	31,441,540	
		Cost	1,960,262	786,930	431,464	10,156	30,989,162	
21	Newark Ohio (Previous Project)	New Work						
		Approp					845,916	
		Cost					845,916	
		Maint						
		Approp					758,673	
		Cost					758,673	
	(Existing Project)	New Work						
		Approp					11,151,232	³²
		Cost					11,151,232	³²
22	North Branch of Kokosing River	New Work						
		Approp					6,665,985	³³
		Cost					6,665,985	³³
		Maint						
		Approp	491,967	623,305	203,044	249,146	5,782,617	
		Cost	461,533	644,199	212,185	250,475	5,782,619	
23	North Fork of Pound River Lake	New Work						
		Approp					6,186,901	³⁴
		Cost					6,186,901	³⁴
		Maint						
		Approp	304,341	493,919	326,662	338,463	10,354,258	³⁵
		Cost	304,235	478,246	340,529	341,204	10,443,892	³⁵
24	Ohio Environmental Program	New Work						
		Approp	0	157,000	93,000	64,649	314,649	
		Cost	0	46,876	63,572	166,600	277,048	
25	Ohio River Basin	New Work						
		Approp					355,861	³⁶
		Cost					355,861	³⁶
26	Paint Creek Lake	New Work						
		Approp					26,969,962	³⁷
		Cost					26,969,962	³⁷
		Maint						
		Approp	612,843	805,003	688,688	730,510	15,744,573	³⁸
		Cost	597,171	813,910	694,571	734,280	15,743,174	³⁸
27	Paintsville Lake	New Work						
		Approp					60,194,986	
		Cost					60,194,986	
		Maint						
		Approp	935,486	1,137,462	1,137,599	956,734	17,529,504	
		Cost	932,399	1,131,038	1,140,871	964,395	17,524,984	

HUNTINGTON, WV DISTRICT

Table 25-A (Cont'd)

Cost and Financial Statement

See Section In Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	Total Cost To Sep. 30, 2003	
28	R. D. Bailey Lake	New Work						
		Approp					261,251,678	³⁹
		Cost					261,251,678	³⁹
		Maint						
		Approp	1,553,551	1,563,200	1,399,543	1,586,158	32,403,948	⁴⁰
		Cost	1,560,074	1,551,729	1,407,664	1,576,574	32,382,443	⁴⁰
29	Roseville, Ohio	New Work						
		Approp					910,785	
		Cost					910,785	
		Maint						
		Approp	2,315	2,500	956	31,013	284,954	
		Cost	2,470	569	2,887	30,942	284,883	
30	Southern and Eastern Kentucky Env. Infrastructure	New Work						
		Approp	-1,045,000	992,000	3,999,550	-1,041,000	7,535,550	
		Cost	453,660	1,186,626	1,027,373	868,876	4,073,070	
31	Southern West Virginia Env. Infrastructure	New Work						
		Approp	1,279,000	2,514,010	2,521,000	-2,521,544	9,429,466	⁴¹
		Cost	1,343,504	1,153,703	1,230,293	249,363	9,017,261	⁴¹
32	Summersville Lake	New Work						
		Approp					48,375,884	⁴²
		Cost					48,375,884	⁴²
		Maint						
		Approp	1,564,592	1,599,759	1,664,997	1,699,318	39,834,569	⁴³
		Cost	1,565,797	1,617,539	1,658,176	1,712,467	39,825,775	⁴³
33	Sutton Lake	New Work						
		Approp					37,029,585	⁴⁴
		Cost					37,029,585	⁴⁴
		Maint						
		Approp	1,762,674	1,828,429	2,235,881	2,165,537	45,864,031	⁴⁵
		Cost	1,779,211	1,818,914	2,221,050	2,179,5539	45,831,299	⁴⁵
34	Tom Jenkins Dam	New Work						
		Approp					2,086,503	⁴⁶
		Cost					2,086,503	⁴⁶
		Maint						
		Approp	430,979	338,239	232,721	295,110	4,673,631	
		Cost	430,177	334,393	238,624	296,516	8,669,472	
35	West Columbus	New Work						
		Approp	8,736,961	8,812,000	12,592,500	5,877,777	89,793,518	⁴⁷
		Cost	10,881,536	9,596,620	14,315,179	6,030,742	89,696,514	⁴⁷

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

Table 25-A (Cont'd)

Cost and Financial Statement

See Section							Total Cost To Sep. 30, 2003
In Text	Project	Funding	FY 00	FY 01	FY 02	FY 03	
36	Yatesville Lake	New Work					
		Approp					99,456,500
		Cost					99,453,537
		Maint					
		Approp	940,585	1,117,713	947,420	1,046,158	13,000,840
		Cost	938,308	1,104,747	953,665	1,062,312	12,998,339

Notes for Table 25-A

¹Includes \$4,294,612 for new work for previous projects, \$4,498,636 Emergency Relief funds, \$9,004,800 Public Works funds and \$686,317 Code 713 funds.

²Includes \$3,883,513 for maintenance of previous projects and \$546,090 Maintenance and Operation funds.

³Public Works Acceleration funds.

⁴Includes \$19,828 Inland Waterways Trust funds.

⁵Includes \$103,555 Inland Waterways Trust Fund.

⁶Includes \$19,294,486 Inland Waterways Trust funds.

⁷Includes \$19,357,200 Inland Waterways Trust funds.

⁸Includes \$6,042,744 Inland Waterways Trust funds.

⁹Includes \$6,061,033 Inland Waterways Trust funds.

¹⁰Includes \$1,063 Maintenance and Operation funds.

¹¹Includes \$543,960 Emergency Relief funds, \$9,698 Public Works Acceleration funds, \$211,850 Code 711 funds and \$75,000 Code 713 funds.

¹²Includes \$2,795 Maintenance and Operation funds.

¹³Includes \$748,281 Maintenance and Operation funds.

¹⁴Excludes \$225,090 contributed funds. Includes \$590,000 Code 711 funds.

¹⁵Includes \$130,000 provided by the Productive Employment Act of 1983.

¹⁶Includes \$240,000 provided by the Productive Employment Act of 1983.

¹⁷Includes \$23,087 Public Works Acceleration funds, \$1,089,940 Code 711 funds and \$231,105 Code 713 funds.

¹⁸Includes \$82,900 Special Recreation Use Fee Funds and \$747,028 Maintenance and Operations Funds.

¹⁹Includes \$100,000 provided from the Productive Employment Act of 1983.

²⁰Includes \$1,924 Maintenance and Operations funds.

²¹Includes \$209,918 Special Recreation Use Fee Funds and \$747,028 Maintenance and Operations Funds.

²²Includes \$362,649 Code 711 funds and \$10,000 Code 712 funds.

²³Includes \$38,000 Special Recreation Use Fee Funds and \$748,714 Maintenance and Operations Funds.

²⁴Includes \$406,919 Code 711 funds and \$2,317 code 713 funds.

²⁵Includes 422,983 Code 711 funds

²⁶Includes \$88,710 special recreation use funds.

²⁷Includes Cost from Ohio River Division of \$696,000. Excludes \$20,819,782 cumulative contributed funds.

²⁸Includes \$477,813 contributed funds.

²⁹Includes \$27,190,000 National Industrial Recovery funds and \$528,288 Code 711 funds.

³⁰Includes \$206,815 Maintenance and Operations funds.

³¹Includes \$61,945 public Works Acceleration funds.

³²Excludes \$160,082 contributed funds.

³³Includes \$45,177 Code 711 funds.

³⁴Includes \$64,233 Code 711 funds.

³⁵Includes \$68,200 special recreation use fees.

³⁶Includes \$10,920 Emergency Relief funds.

³⁷Includes \$14,153 Code 711 funds.

³⁸Includes \$31,496 special recreation use fee funds.

³⁹Includes \$5,534 Consolidated Army funds.

⁴⁰Includes \$60,000 provided from the Productive Employment Act of 1983, and \$85,233 Maintenance and Operations Funds.

⁴¹Excludes \$1,386,692 cumulative contributed funds.

⁴²Includes \$300,062 Code 711 funds.

⁴³Includes \$214,112 special recreation use fee funds, \$300,000 provided from the Productive Appropriations Act of 1983, and \$100,016 Maintenance and Operation Funds.

⁴⁴Includes \$1,837,337 Code 711 funds and \$287,843 Accelerated Public Works funds. Excludes \$62,800 contributed funds.

⁴⁵Includes \$267,634 special recreation use fee funds, \$215,000 provided from the Productive Employment Appropriations Act of 1983, and \$144,562 Maintenance and Operations Funds.

⁴⁶Includes \$8,064 Code 711 funds and \$30,000 Public Works Acceleration funds. excludes \$575,000 contributed funds.

⁴⁷Excludes \$6,878,109 cumulative contributed funds.

HUNTINGTON, WV DISTRICT

Table 25-B		Authorizing Legislation	
See Section In Text	Date of Authorizing Act	Project and Work Authorized	Documents
2	Aug 30, 1935	KANAWHA RIVER LOCKS AND DAMS, WV Construction of three locks and dams on the Kanawha River and one on the Ohio	H. Doc 31, 73rd Cong., 1st Sess.
	Aug 15, 1985	Engineering and Design and Land Acquisition to Winfield Locks and Dam.	P.L. 99-88, 1st Sess.
	Oct 12, 1996	Construction of 110' x 800' replacement lock to replace 56' x 360' twin lock chambers at Marmet Locks and Dam.	P.L. 104-303, (WRDA '96)
5	Oct 23, 1962	ALUM CREEK LAKE, OH Construction of Flood Control Reservoir	H. Doc 587, 87th Cong 2nd Sess.
6	Oct 23, 1962	BEECH FORK LAKE, WV Construction of Flood Control Reservoir	H. Doc 587, 87th Cong 2nd Sess.
7	Jun 28, 1938	BLUESTONE LAKE, WV Construction of Flood Control Reservoir	H. Doc 91, 74th Cong 2nd Sess.
	Dec 22, 1944	Added Recreation; Deleted Power	P.L. 78-534, 2nd Sess.
	Oct 31, 1992	Authorization for Drift & Debris Removal	P.L. 102-580 (WRDA '92) P.L. 104-303 (WRDA '96) P.L. 106-53 (WRDA '99)
8	Jun 28, 1938	BURNSVILLE LAKE, WV Construction of Flood Control Reservoir	Flood Control Comm. Doc 1, 75th Cong, 1st Sess.
	Dec 22, 1944	Added Recreation	P.L. 78-534, 2nd Sess.
9	Aug 17, 1999	CENTRAL WEST VIRGINIA ENVIRONMENTAL INFRASTRUCTURE Design and Construction Assistance for Environmental Infrastructure	P.L. 106-53, Sec 571 (WRDA '99)
10	Jun 28, 1938	DEER CREEK LAKE, OH Construction of Flood Control Reservoir	Flood Control Comm. Doc 1, 75th Cong, 1st Sess.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

Table 25-B (Cont'd)		Authorizing Legislation	
See Section In Text	Date of Authorizing Act	Project and Work Authorized	Documents
11	Jun 28, 1938	DELAWARE LAKE, OH Construction of Flood Control Reservoir	Flood Control Comm. Doc 1, 75th Cong, 1st Sess.
	Dec 22, 1944	Added Recreation	P.L. 78-534, 2nd Sess.
12	Jun 28, 1938	DEWEY LAKE, OH Construction of Flood Control Reservoir	Flood Control Comm. Doc 1, 75th Cong, 1st Sess.
	Dec 22, 1944	Added Recreation	P.L. 78-534, 2nd Sess.
13	Jun 28, 1938	DILLON LAKE, OH Construction of Flood Control Reservoir	Flood Control Comm. Doc 1, 75th Cong, 1st Sess.
	Dec 22, 1944	Added Recreation	P.L. 78-534, 2nd Sess.
14	Jun 28, 1938	EAST LYNN LAKE, OH Construction of Flood Control Reservoir	Flood Control Comm. Doc 1, 75th Cong, 1st Sess.
	Dec 22, 1944	Added Recreation	P.L. 78-534, 2nd Sess.
15	Jun 28, 1938	FISHTRAP LAKE, OH Construction of Flood Control Reservoir	Flood Control Comm. Doc 1, 75th Cong, 1st Sess.
	Dec 22, 1944	Added Recreation	P.L. 78-534, 2nd Sess.
16	Jul 14, 1960	GRAYSON LAKE, KY Construction of Flood Control Reservoir	H. Doc 440, 86th Cong 2nd Sess.

HUNTINGTON, WV DISTRICT

Table 25-B (Cont'd)		Authorizing Legislation	
See Section In Text	Date of Authorizing Act	Project and Work Authorized	Documents
17	Jun 28, 1938	JOHN W. FLANNAGAN DAM AND RESERVOIR, VA Construction of Flood Control Reservoir	Flood Control Comm. Doc 1, 75th Cong, 1st Sess.
	Dec 22, 1944	Added Recreation	P.L. 78-534, 2nd Sess.
18	Oct 01, 1980	LEVISA AND TUG FORKS OF THE BIG SANDY RIVER, AND CUMBERLAND RIVER, KY, WV, AND VA Construction of such Flood Control Measures as deemed Necessary and Advisable	P.L. 96-367, Sec 202
19	Jun 28, 1938	MASSILLON , OH Construction of Channel Improvement Project	Flood Control Comm. Doc 1, 75th Cong, 1st Sess.
20	Feb 20, 1934	MUSKINGUM RIVER LAKES, OH Construction of 14 Flood Control Reservoirs	Public Work Admin
	Jun 28, 1938	Reimbursement to the Muskingum Conservancy District a sum not to exceed actual expenditures for project construction	Flood Control Comm. Doc 1, 75th Cong, 1st Sess.
	Aug 11, 1939	Operations and Maintenance assigned to the Corps of Engineers	P.L. 76-396, 1st Sess
21	Jun 28, 1938	NEWARK, OH Construction of Channel Improvement Project	Flood Control Comm. Doc 1, 75th Cong, 1st Sess.
	Aug 13, 1968	Modification to Existing Project and Additional Channel Improvement and Drainage Facilities	H. Doc 337, 90th Cong, 2nd Sess.
22	Oct 23, 1962	NORTH BRANCH OF KOKOSING RIVER LAKE, OH Construction of Flood Control Reservoir	H. Doc 220, 87th Cong

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

Table 25-B (Cont'd)		Authorizing Legislation	
See Section In Text	Date of Authorizing Act	Project and Work Authorized	Documents
23	Jul 14, 1960	NORTH FORK OF POUND RIVER LAKE, VA Construction of Flood Control Reservoir	2nd Sess. H. Doc 645, 86th Cong, 2nd Sess.
24	Aug 17, 1999	OHIO ENVIRONMENTAL PROGRAM Design and Construction Assistance for Environmental Infrastructure	P.L. 106-53, Sec 594 (WRDA '99)
25	Jun 28, 1938	PAINT CREEK LAKE, OH Construction of Flood Control Reservoir	Flood Control Comm. Doc 1, 75th Cong, 1st Sess.
	Dec 22, 1944	Added Recreation	P.L. 78-534, 2nd Sess.
26	Oct 27, 1965	PAINTSVILLE LAKE, KY Construction of Flood Control Reservoir	H. Doc 246, 89th Cong, 1st Sess.
27	Oct 23, 1962	R. D. BAILEY LAKE, WV Construction of Flood Control Reservoir	H. Doc 569, 87th Cong, 2nd Sess.
28	Jun 28, 1938	ROSEVILLE, OH Construction of Channel Improvement Project	Flood Control Comm. Doc 1, 75th Cong, 1st Sess.
29	Oct 12, 1996	SOUTHERN AND EASTERN KENTUCKY ENVIRONMENTAL INFRASTRUCTURE Design and Construction Assistance for Environmental Infrastructure	P.L. 104-303 (WRDA'96), as amended by P.L. 106-53 (WRDA '99)
30	Oct 31, 1992	SOUTHERN WEST VIRGINIA ENVIRONMENTAL INFRASTRUCTURE Design and Construction Assistance for Environmental Infrastructure	P.L. 102-580 (WRDA'92)

HUNTINGTON, WV DISTRICT

Table 25-B (Cont'd)		Authorizing Legislation	
See Section In Text	Date of Authorizing Act	Project and Work Authorized	Documents
31	Jun 28, 1938	SUMMERSVILLE LAKE, WV Construction of Flood Control Reservoir	Flood Control Comm. Doc 1, 75th Cong, 1st Sess.
	Dec 22, 1944	Added Recreation	P.L. 78-534, 2nd Sess.
32	Jun 28, 1938	SUTTON LAKE, WV Construction of Flood Control Reservoir	Flood Control Comm. Doc 1, 75th Con 1st Sess.
	Dec 22, 1944	Added Recreation	P.L. 78-534, 2nd Sess.
33	Dec 22, 1944	TOM JENKINS DAM, OH Construction of Flood Control Reservoir	P.L. 78-534, 2nd Sess.
34		WEST COLUMBUS, OH Construction of Local Protection Project	P.L. 99-662
35	Oct 27, 1965	YATESVILLE LAKE, KY Construction of Flood Control Reservoir	H. Doc. 246, 89th Cong. 2nd Sess.
36	Jun 22, 1936	INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS Inspection of Local Maintenance of Federally Constructed Local Protection Projects	P. L. 74-738

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

Table 25-C Other Authorized Navigation Projects

Project	Status	For Last Full Report See Annual Report For	Cost to Sep 30, 2003		
			Construction	Operation and Maintenance	Contributed Funds Expended
Big Sandy River, WV and KY including Levisa and Tug Forks ^{1 and 2}	completed	1952	1,586,236	15,698,111	131,473
Elk River, WV ³	completed	1903	30,259		
Gauley River, WV ⁴	completed	1903	14,761		
Guyandotte River, WV ⁵	completed	1915	27,500		
Little Kanawha River, WV ⁶	completed	1960	470,536	1,023,854	
Muskingum River, OH ⁷	completed	1955	301,912	6,171,897	6,041
New River, WV and VA ⁵	completed	1899	109,691		
Scioto River at Portsmouth, OH ⁸	completed	1953	10,951	16,593	

¹In addition, \$140,068 expended from funds transferred from Department of Commerce, Under accelerated public works program, for repairs of eroded bank at Lock 3 on Big Sandy River, at Louisa, KY.

²Operations and maintenance suspended June 30, 1952.

³Work closed September 1902. Property transferred to Kanawha River improvements.

⁴Work closed September 1902. Abandonment recommended in H. Doc 467, 69th Congress.

⁵Work suspended.

⁶Operation and maintenance suspended June 30, 1951.

⁷Collections from licensed non-Federal hydroelectric utilities for use of dams on Muskingum River for fiscal years 1923-1953 were \$79,154.

⁸P.L. 954, August 31, 1954, authorized Secretary of Treasury to pay Portsmouth Sand and Gravel Co. \$75,000 in full settlement of claims against government for damages resulting from change in Scioto River Channel.

HUNTINGTON, WV DISTRICT

Table 25-E

Other Authorized Flood Control Projects

Project	Status	For Last Full Report See Annual Report For	Cost to Sep 30, 2003		
			Construction	Operation and Maintenance	Contributed Funds Expended
Ashland, KY, LPP	Completed	1954	3,718,839	---	---
Athens, OH, LPP	Completed	1979	5,313,700	---	---
Augusta, KY	Inactive	---	11,577	---	---
Cattletsburg, KY, LPP	Completed	1963	3,854,361	---	---
Ceredo-Kenova, WV, LPP	Completed	1955	2,753,551	---	---
Chillicothe, OH, LPP	Completed	1986	20,373,314	---	---
Coal River, WV	Inactive	1979	472,229	---	---
East Rainelle, WV, LPP	Completed	1962	614,598	---	---
Galax, VA, LPP	Completed	1953	480,536	---	---
Haysi, VA	Inactive	---	2,656	---	---
Huntington, WV, LPP	Completed	1956	7,172,840	---	---
Ironton, OH, LPP	Completed	1952	2,604,646	---	---
Kehoe Lake, KY	Deferred	1981	1,272,740	---	---
	Active with no current year				
Martin, KY	expenditures	1983	212,048	---	---
Maysville, KY, LPP	Completed	1959	6,493,747	---	---
Newark, OH (Interior Drainage)	Deferred	1983	---	---	---
Oceana, WV	Deferred	1981	611,000	---	---
Parkersburg, WV, LPP	Completed	1955	6,652,827	---	---
Pt. Pleasant, WV, LPP	Completed	1955	2,919,578	---	---
Portsmouth - New Boston, OH, LPP	Completed	1956	9,806,424	---	---
Princeton, WV, LPP	Completed	1962	808,750	---	---
Russell, KY, LPP	Completed	1953	552,493	---	---
Vanceburg, KY	Inactive	---	---	---	---
Williamson, WV, LPP	Completed	1964	1,056,166	---	---

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

Table 25-G Deauthorized Projects

Projects	For Last Full Report See Annual Report For	Date	Federal Funds Expended	Contributed Funds Expended
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All projects listed in this table have been deauthorized in accordance with Section 12 of the Water Resources Development Act of 1974, P. L. 251, 93rd Congress

Local Protection Projects

Aberdeen, OH	---	May 1981	1,334	---
Athalia, OH	---	Aug 1977	---	---
Belpre, OH	---	Nov 1977	---	---
Brooklyn, WV	---	Nov 1979	---	---
Buena vista, OH	---	Aug 1977	---	---
Chambersburg, OH	---	Nov 1986	---	---
Cheshire, OH	---	Nov 1977	---	---
Chilo, OH	---	Aug 1977	---	---
Clifton, WV	---	Aug 1977	11,237	---
Coal Grove, OH	---	Jan 1990	3,389	---
Columbus, OH	---	Aug 1977	---	---
Dover, KY	---	Jan 1990	---	---
Friendly, WV	---	Aug 1977	---	---
Fullerton, KY	---	Jan 1990	---	---
Gallipolis, OH	---	Aug 1977	---	---
Greenup, KY	---	Jan 1990	4,962	---
Hanging Rock, OH	---	Aug 1977	---	---
Hartford, WV	---	Aug 1977	---	---
Henderson, WV	---	Aug 1977	---	---
Higginsport, OH	---	Oct 1978	---	---
Hockingport, OH	---	Aug 1977	---	---
Killbuck, OH	---	Apr 2002	---	---
Letart, WV	---	Aug 1977	---	---
Letart Falls, OH	---	Aug 1977	---	---
Lower Guyandotte, River Basin, WV	---	Nov 1986	17,721	---
Manchester, OH	---	May 1981	---	---
Mansfield, OH	---	Apr 2002	---	---
Mapleshade, OH	---	Oct 1978	---	---
Marietta, OH	---	Nov 1981	---	---
Mason, WV	---	Aug 1977	---	---
Middleport, OH	---	May 1981	9,783	---
Miller, OH	---	Aug 1977	---	---
Millwood, WV	---	Aug 1977	---	---
Nelsonville, OH	---	Apr 2002	---	---
New Martinsville, WV	---	Nov 1979	---	---
New Matamoras, OH	---	Aug 1977	---	---
Newport, OH	---	Aug 1977	---	---
Normal, KY	---	Jan 1990	---	---

HUNTINGTON, WV DISTRICT

Table 25-G (Cont'd)

Deauthorized Projects

Projects	For Last Full		Federal Funds Expended	Contributed Funds Expended
	Report See Annual Report For	Date		
North Chillicothe, OH	---	Apr 2002	---	---
Pomeroy, OH	---	Aug 1977	---	---
Portland, OH	---	Aug 1977	---	---
Proctorville, OH	---	Nov 1986	---	---
Racine, OH	---	Aug 1977	---	---
Ripley, OH	---	Oct 1978	7,523	---
Riverview, WV	---	Aug 1977	---	---
St. Mary's, WV	---	Aug 1977	---	---
Sardis, OH	---	Aug 1977	---	---
Sciotoville, OH	---	Aug 1977	---	---
Sistersville, WV	---	Aug 1977	---	---
South Point, OH	---	Nov 1986	---	---
South Portsmouth, KY	---	Jan 1990	---	---
Syracuse, OH	---	Aug 1977	---	---
Waverly, WV	---	Aug 1977	---	---
Williamstown, WV	---	Nov 1979	---	---
Zanesville, OH	---	May 1981	---	---

Reservoirs and Lakes

Big Bend, WV	---	Aug 1977	---	---
Big Darby, OH	1969	Nov 1979	3,349,568	---
Birch, WV	---	Nov 1986	---	---
Fazeysburg, OH	---	May 1981	5,000	---
Kehoe Lake, KY	---	Jul 1992	1,273,000	---
Leading Creek, WV	1974	Jan 1990	272,880	---
Logan, OH	---	Oct 1985	---	---
Millersburg, OH	---	May 1981	---	---
Mill Creek, OH	1981	Nov 1985	1,602,702	---
Moore's Ferry, VA	---	Nov 1986	22,879	---
Mud River, WV	---	Nov 1979	---	---
Panther Creek, WV	1976	Nov 1986	---	---
Poca, WV	---	May 1981	---	---
Rocky Fork, OH	1950	Aug 1977	91,321	---
Salt Creek, OH	1975	Nov 1986	1,089,943	---
Utica, OH	1975	Jan 1990	757,550	---
West Fork, WV	1974	Jan 1990	663,192	---
White Oak Creek, OH	---	Nov 1981	---	---

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2003

Table 25-H Inspection of Flood Control Projects (See Sec 33 of Text)

Flood Control Works Inspected	Dates of Inspection
Ashland, KY	JUL 03
Athens, OH	SEP 03
Berwind, WV	NOT INSPECTED
Bramwell, WV	SEP 02
Cairo, WV	SEP 03
Canton (Nimishillen), OH	NOT INSPECTED
Catlettsburg, KY	JUN 03
Ceredo-Kenova, WV	APR 03
Chillicothe, OH	APR 03
East Rainelle, WV	SEP 03
Fishing Creek, Pine Grove, WV	REMOVED FROM PROGRAM
Fourpole Creek, Huntington, WV	NOT INSPECTED
Galax, VA	SEP 03
Grahn, KY	NOT INSPECTED
Hargus Creek, Circleville, OH	NOT INSPECTED
Hitchins, KY	REMOVED FROM PROGRAM
Huntington, WV	APR 03
Inez, KY	DEC 03
Ironton, OH	JUN 03
Massillon, OH	NOT INSPECTED
Matewan, WV	SEP 03
Maysville, KY	JUL 03
Montcalm, WV	SEP 03
Mount Vernon, OH	NOT INSPECTED
Newark, OH	NOT INSPECTED
Olive Hill, KY	NOT INSPECTED
Paint Creek at Chillicothe, OH	NOV 02
Paint Creek at Washington Court House, OH	SEP 03
Parkersburg, WV	JUL 03
Pax, WV	SEP 03
Point Pleasant, WV	MAY 03
Portsmouth-New Boston, OH	AUG 03
Prestonsburg, KY	APR 03
Princeton, WV	SEP 03
Richwood , WV	SEP 03
Right and Left Forks of Beaver Creek, KY	REMOVED FROM PROGRAM
Ripley, WV	SEP 03
Roseville, OH	NOT INSPECTED
Russell, KY	AUG 03
Smithfield, WV	REMOVED FROM PROGRAM
South Williamson, KY	SEP 03
South Williamson (Hospital), KY	SEP 03
Spencer, WV	SEP 03
Utica, OH	NOT INSPECTED
West Columbus, OH	SEP 03
West Union, Middle Island, WV	SEP 03
West Williamson, WV	SEP 03
Williamson, WV	SEP 03